*60IHSSF3201*

DocumentID NONCD0002796

Site Name BRENNTAG SOUTHEAST

DocumentType Site Assessment Rpt (SAR)

RptSegment 1

DocDate 2/25/1987

DocRcvd 2/27/2007

Box SF3201

AccessLevel PUBLIC

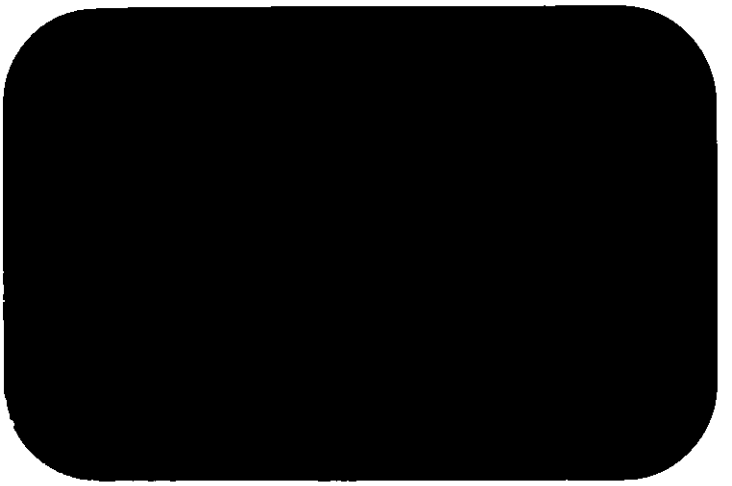
Division WASTE MANAGEMENT

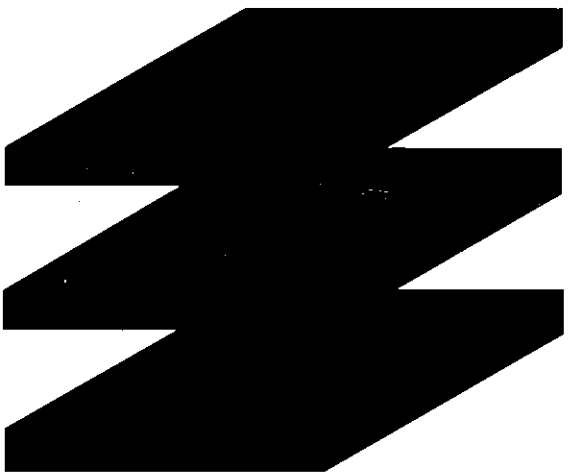
Section SUPERFUND

Program IHS (IHS)

DocCat FACILITY

# T.R. Edgerton, Inc.





# Environmental Sub-Surface Investigation Annandale Corp. Site

Prepared for
Worth Chemical Corp.
Greensboro, NC

Prepared by
T. R. Edgerton, Inc.
Cary, NC

February 25, 1987

102 Woodwinds Industrial Court
Suite F
Cary, North Carolina 27511
919/469-9795

T.R. Edgerton, Inc.
*Environmental*
*Consultants*

Mr. Calvin Lynch
Vice-President
Worth Chemical Corp.
P.O. Box 20725
Greensboro, NC 27420

Re: Environmental Sub-surface Investigation Annandale Corporation Site
T. R. Edgerton, Inc. Job #1052-086-003

Dear Mr. Lynch:

T. R. Edgerton, Inc. is pleased to submit this environmental sub-surface investigation for property purchased by P. M. Segal, Jr. December 31, 1986 from Annandale Corporation.

**INTRODUCTION**

T. R. Edgerton, Inc. was requested by Worth Chemical Corp. through Four Seasons Industrial Services, Inc. to perform an environmental sub-surface investigation of property owned previously by Annandale Corporation and purchased by P. M. Segal, Jr. This investigation is a result of requirements submitted for financing by Wachovia Bank and Trust Co., N.A., Winston-Salem, NC. A copy of these bank requirements is found in the exhibit section.

An initial site evaluation was conducted in December, 1986 on conditions pertaining to any impact that may have occurred on said site by activities of the former owner, Annandale Corporation. The results of

this evaluation were forwarded in a report dated 12/19/86 and titled "Environmental Industrial Site Evaluation Annandale Corporation". A summary letter attesting to site conditions was drafted and submitted to Four Seasons Industrial Services on December 18, 1986. A copy of this correspondence is found in the exhibit section. Additionally a Site Questionnaire was submitted to Four Seasons Industrial Division on December 18, 1986. A copy of this document is also found in the exhibit section.

**OBJECTIVES**

The objectives of this investigation are to determine the environmental sub-surface conditions on property purchased by P.M. Segal, Jr. from Annandale Corporation. This investigation attests only to current environmental conditions and does not include impact from past activities.

**SITE LOCATION**

The location of the Annandale Corporation is found on USGS Charlotte West, NC Quadrangle NC35075-W8052.5/7.5 and Fort Mill, SC-NC Quadrangle NC3500-W8052.5/7.5. Coordinates for the site are longitude 80° 50'00" West Latitude 35° 07'28"N. Figure 1 is a copy of the USGS map showing site location.

**REGIONAL GEOLOGY**

Mecklenburg County and the referenced site is located in the Piedmont Physiographic Province of North Carolina, more specifically the Charlotte Belt. The area is characterized by metamorphosed gabbros, and diorites of Paleozoic Age (240-570 million years).

In General the Diorite-Gabbro complexes of this area are coarse textured rock. They are chiefly composed of hornblende or pyroxene, plagioclase, and varying amounts of quartz and accessory minerals. As in this area rock in some places is exposed as rounded boulders or flat outcrops that are not much weathered (Geologic map of North Carolina, 1985).

The topography of the area is characterized by gently rolling hills dissected by streams and tributaries. Maximum topographic relief across the site is approximately 10 to 15 feet.

**DRILLING PROGRAM**

Three ground-water monitoring wells, designated by the prefix AB, were installed on the property of Annandale Corporation, Charlotte North Carolina. The three borings were advanced with an CME 550 All Terrain Vehicle (ATV) using 8.0" O.D. hollow stem augers. Each boring was sampled by means of a split barrel device in accordance with ASTM D-1586. A qualified geologist was present to visually log each sample. In order to determine: 1) the depth of groundwater; 2) screen depths, the first boring AB-1 was advanced to a depth of approximately 24.0 feet and allowed to remain open over night. Static water level was measured the following morning. After completion of each boring a permanent ground-water monitoring well was installed and screened across the phreatic surface.

In general a two inch diameter PVC flush joint casing with a slot 10 screen was inserted into each of the boreholes. The annular space was then backfilled with a coarse sand pack to a minimum of one foot above the screen. To prevent infiltration of surface water into the well and to protect water quality, a volclay seal of approximately one-

to two feet in thickness was placed above the sand pack and hydrated. A neat cement grout was then tremied up from the top of the volclay seal to the ground surface. A four inch diameter protective casing with locking cap was grouted in around the well (see Appendices for boring logs, well records and well schematics).

## SITE LITHOLOGY

Two stratigraphic cross sections (Figures 4, 5 and 6) have been developed from the three stratigraphic borings located on the property of Annandale Chemical Corporation, Charlotte, North Carolina.

Borings AB-1 and AB-2 were lithologically similar and penetrated a Brown Micaceous Slightly Fine to Coarse Sandy Silt (saprolite) grading into a dense Brown Silty Fine to Coarse Sand which eventually graded into a weathered rock at the base (Diorite).

Boring AB-3 penetrated approximately 9.0 feet of fill material which consisted of Dark Brown Silty Fine to Coarse SANDS to Dark Grey Micaceous Fine to Coarse Sandy SILTS. A thin lense of alluvial material consisting of Brown Silty Fine to Coarse Sand was encountered at 9.0 feet and graded into a clayey silt Saprolite at 10.0 feet. Boring AB-3 was terminated at 12 feet with auger refusal.

Bedrock on site has been determined, through previous testing by Law Engineering Company (1976) and through visual inspection, of outcrops on site to be a Hornblend rich Diorite complex.

## HYDROGEOLOGY

Three permanent ground-water monitor wells were installed on the referenced site (See Figure 3). All wells were developed extensively to allow for equilibration of static watertable. Water level readings

indicate a shallow surficial watertable exist across the site. Depth to groundwater varies from approximately 3.0 feet below ground surface at AB-2 to approximately 10.0 feet at AB-3 indicating a fairly steep ground-water gradient at the site (see Table 3 for watertable measurements).

Based on limited data points a ground-water contour map has been developed (See Figure 7). It appears the groundwater beneath the site is flowing in a north-northeasterly direction.

**MAGNETOMETER SURVEY**

A magnetometer survey was attempted at the Annandale Corp. Site on January 17, 1987 utilizing an EG&G Geometrics proton precession magnetometer (model 846-G). A north-south baseline through the approximate center of the large field to the west of the main plant building was initially established with recording stations at 20 foot intervals. A second survey line was then staked perpendicular to the existing baseline on the northern end of the field to set the foundation for a gridded survey pattern across the field. Preliminary measurements were then taken to sense the general nature of the existing total magnetic field across the site.

The preliminary field magnetometer measurements taken indicated that detection of buried objects such as metal drums was not feasible. Magnetic anomalies normally associated with buried metal drums generally do not exceed about 50 gammas in magnitude. However, the predominant subsurface lithology present at the Annandale Site consists of a hornblende diorite which by nature has a significant percentage of iron as part of its chemical composition. Magnetic anomalies attributed to the diorite exceeded over 1500 gammas across the entire site and varied

extensively between data stations. Bedrock appears to outcrop near the center of the field and the random nature of magnetic readings suggests that bedrock undulates close to the surface (within about 10 feet) for much of the site.

The magnetic intensity of the bedrock effectively "masks" any anomalies that could ever be produced by the occurrence of even a trench filled with metal drums. Therefore, use of magnetometry for delineating any such feature is impractical.

Sampling

Soil sampling was conducted on January 5, 1987 and January 27, 1987. Locations of soil sampling are shown in Figure 2. Sampling techniques followed guidelines found in EPA guidelines document EPA-600/2-80-018. Briefly, soil samples were collected using previously decontaminated stainless steel augers or spoons. Samples were collected from several locations within a sampling area and composited for testing.

Stream sampling was conducted on January 5, 1987. Briefly, a grab sample of stream water entering the site was collected for chemical testing.

Ground water monitoring well sampling was conducted on January 9, 1987. Sampling procedures and monitor well evacuation and development followed procedures found in (1) "Manual of Ground-Water Quality Sampling Procedures" USEPA, 1981; (2) "RCRA Ground-Water Monitoring Technical Enforcement Guidance Document", USEPA, September, 1986; (3) Guidance Document - August 22, 1985 NC office Solid and Hazardous Waste "An Approved RCRA Ground-Water Sampling and Analysis Plan".

Briefly, 3-5 well volumes were removed from each well using a dedicated teflon bailer prior to sampling. Samples were collected in appropriate bottles for analysis.

Throughout sampling events and testing procedures, chain-of-custody was adhered too. Copies of the chain-of-custody documents are found in the appendices.

Chemical Testing

Inorganic parameters (metals, cyanide, phenol) followed methods found in (1) "Methods for Chemical Analysis of Water and Waste" EPA-600/4-79-020; and (2) "Test Methods for Evaluating Solid Waste" EPA SW846. Organic parameters followed methods found in (1) Test Methods for Evaluating Solid Waste" EPA-SW 846; and (2) Methods 624, 625 and 608 found in Vol. 49, October 26, 1984 Federal Registrar.

**CHEMICAL TESTING RESULTS**

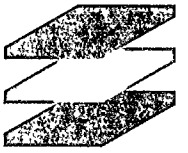
Soils & Sediments

Chemical testing of soils for heavy metals indicate the presence of arsenic barium, chromium, nickel and zinc and in one sampling location (AC-4) cyanide.

Organic testing of soils except for sampling point AC-2 give no indication of organic contamination. Sampling point AC-2 contains measurable levels (ppb) of polynuclear aromatics (PNA) constituents.

Stream Sampling Results

Organic testing of the stream water approaching the Annandale Corp. site indicated levels of the organic contaminate methylene chloride. No appreciable levels of inorganics were indicated.



Ground-water Monitoring Results

Inorganic testing indicates the presence of heavy metals: arsenic; barium; chromium; lead; nickel and zinc in all monitor wells and selenium in monitor well AB-3. The inorganic parameter phenol and cyanide were also detected in all wells. No measurable organics were indicated in the ground-water monitor wells.

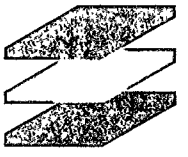
## DISCUSSION OF RESULTS

Geology

Due to shallow depth of bedrock and resultant shallow (perched ?) water table the site is very sensitive environmentally. Evidence of extensive backfilling on portions of the site are noted. Also, due to site lithology any placement of contaminated materials (i.e. drums, etc.) below surface would be extremely difficult.

Soils - Chemical Testing

Surface sampling of soils indicate the possibility of heavy metal contamination. Sources of contamination could result from two possible sources: (1) fill material brought on site (2) railroad activity. The contamination of soils with polynuclear aromatic (PNA) constituents at sample point AC-2 is indicative of creosote treated wood and may be a result of run-off from the rail area. Contaminate migration is minimal from this point due to the lack of PNA contaminants at sample point AC-5.



Ground-water - Chemical Testing

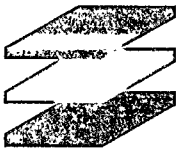
Groundwater has been impacted on this site with heavy metal and phenol contamination. The sources of this contamination are from several possible areas: (1) fill material; (2) railroad activity; (3) off-property migration through the site. Background ground-water quality cannot be determined since all wells are contaminated. Some comparison can be drawn between stream water quality and the monitor well water quality.

Table 1, lists allowable levels for groundwater contaminants. Table 2 is a comparison of monitor well data to State ground-water standards. A review of Table 2 indicates all wells are contaminated and well AB-3 is above allowable limits for barium, chromium, lead, selenium, and phenol. Well AB-1 is above limits for lead and phenol at well AB-2 above limits for phenol.

Monitor well AB-3 was resampled and the samples split between two different testing laboratories. Additionally a sample was analyzed on the sampling equipment used for sampling of the well. Testing results from lab to lab are variable but within acceptable agreement (50%). The presence of contaminants in the bailer blank are questionable.

**CONCLUSIONS**

Groundwater underlying the Annandale Corporation property site has been impacted. Soil contaminates are evident near the property boundary bordering railroad right of way. Sources of contamination cannot be determined in this study. However, several possible sources exist: (1) railroad activity; (2) fill material; (3) off property migration of wastes onto property; (4) others.



If you have any questions concerning this investigation please contact us.

Very truly yours,

T. R. Edgerton, Inc.

Thomas R. Edgerton, FAIC, CPC
Senior Consultant

Brent Chambers
Project Manager/Geologist

Teri Moore
Geologist

Tables

Table 1: Ground-water Quality Standards
NCAC T15:022.0202

| Contaminant | MCL *(mg/L) |
|---|---|
| Arsenic | 0.050 |
| Barium | 1.000 |
| Cadmium | 0.010 |
| Chromium | 0.050 |
| Lead | 0.050 |
| Mercury | 0.002 |
| Selenium | 0.010 |
| Silver | 0.050 |
| Phenol | 0.001 |

MCL - Maximum Concentration Limit

Table 2: Monitor Well Data Compound to State Water Quality Standards

| Contaminant | MCL* | AB-1 | AB-2 | AB-3 |
|---|---|---|---|---|
| Arsenic | 0.05 | 0.023 | 0.007 | 0.037 |
| Barium | 1.00 | 0.68 | 0.60 | 1.09 |
| Cadmium | 0.01 | 0.004 | 0.002 | 0.008 |
| Chromium | 0.05 | 0.026 | 0.011 | 0.102 |
| Lead | 0.05 | 0.050 | 0.037 | 0.094 |
| Selenium | 0.01 | <0.0005 | <0.0005 | 0.0623 |
| Phenol | 0.001 | 0.211 | 0.188 | 0.034 |

*Maximum Concentration Limit in mg/L

Table 3
Water Level Readings:

| Date | AB-1 Read | AB-1 Elevation | AB-1 MSL | AB-2 Read | AB-2 Elevation | AB-2 MSL | AB-3 Read | AB-3 Elevation | AB-3 MSL |
|---|---|---|---|---|---|---|---|---|---|
| 1-8-87 | 9.72 | 607.45 | 597.73 | 2.92 | 607.59 | 604.67 | 7.03 | 599.83 | 592.80 |
| 1-9-87 | 9.75 | 607.45 | 597.70 | 3.00 | 607.59 | 604.59 | 7.10 | 599.83 | 592.73 |
| 1-27-87 | 8.94 | 607.45 | 598.51 | 2.29 | 607.59 | 605.30 | 6.50 | 599.83 | 593.33 |
| 2-12-87 | 9.82 | 607.45 | 597.63 | 2.45 | 607.59 | 605.14 | 6.95 | 599.83 | 592.88 |
| 2-13-87 | 9.89 | 607.45 | 597.56 | 2.73 | 607.59 | 604.86 | 7.08 | 599.83 | 592.75 |

Exhibits

# T. R. EDGERTON, INC.

ENVIRONMENTAL CONSULTANTS

P. O. Box 1307
Cary, North Carolina 27511

919/469-9795


December 18, 1986

Mr. Quint Barefoot
Four Seasons Industrial Services, Inc.
519 Patton Ave.
Greensboro, NC 27407

Re: Environmental Assessment, Annandale Corporation Property
T. R. Edgerton, Inc. Job No. 1052-086-003

Dear Mr. Barefoot:

T. R. Edgerton, Inc. has recently been involved, as a sub-contractor to Four Seasons Industrial Services, Inc. in an environmental assessment of property currently owned by Annandale Corporation. A visual inspection of the site and subsequent surface sampling was conducted on December 16, 1986. As a result of this inspection, and after review of supplied chemical feedstock, production and process information, and cursory examination of State of North Carolina Hazardous Waste files, it was determined that the current owner of this property, Annandale Corporation, has not impacted environmentally, said property. Final certification will be reported upon receipt and review of chemical test data from samples collected on December 16, 1986.

T. R. Edgerton, Inc. can make the following statements on said property only covering the period said property was owned by Annandale Corporation. We cannot attest at this time to the period preceding ownership by Annandale Corporation or any impact from neighboring facilities without conducting a thorough surface and sub-surface environmental investigation. The following items do hold true based on the information provided to T. R. Edgerton, Inc.

(1) The premises during the ownership by Annandale Corporation were not used for a repository of Solid and Hazardous Waste as defined in 42 USC 9601 (RCRA), et. sec.

(2) During the ownership by Annandale Corporation that neither the Premises, nor any of the structures thereon have ever either been cited by Federal or State environmental authorities as being in violation of 42 USC 9601, or any other State or Federal Environmental statute, rule or regulation.

(3) There are currently no ground-water monitor wells on the Premises for monitoring hazardous leachate or other hazardous substances or residues.

(4) There is one 10,000 gallon No. 2 fuel oil tank which will be tested for integrity.

Due to time constraints created by the pending sale of the property, T. R. Edgerton, Inc. is unable within the time frames set forth to perform a surface and sub-surface investigation of the site for the presence or absence of any hazardous waste constituents as defined by 40 CFR 261.1-.33, subsection or appendices or determine any violations of 42 USC 9601 (RCRA) or 42 USC 9601 (CERCLA).

T. R. Edgerton, Inc. is of the opinion that present site conditions and operating history of owner, Annandale Corporation indicate at present no environmental liability. However, without a total site assessment, the condition of said property cannot be determined.

If you have any questions concerning this correspondence or need additional information, please don't hesitate to call.

Very truly yours,

Thomas R. Edgerton, FAIC, CPC
President

TRE/dr

1011 014

To: Wachovia Bank and Trust Company, N.A.
P. O. Box 3099 MC 32193
Winston-Salem, North Carolina 27150

Attention: Commercial ~~Mortgage Group~~ FINANCE DEPARTMENT

CERTIFICATE WITH RESPECT TO
TOXIC AND HAZARDOUS WASTE

With respect to that certain [redacted] acre parcel of land situate [redacted], Mecklenburg County, [redacted], described on Exhibit A attached hereto (the "Premises"), I hereby certify to the best of my knowledge after reasonable investigation as follows:

1. The Premises have never been used for a repository for Solid and Hazardous Waste as defined in 42 USC 9601 (RCRA), et. sec.

2. Neither the Premises, nor any of the structures thereon, have ever been cited by Federal or state environmental authorities as being in violation of 42 USC 9601, or any other state or Federal environmental statute, rule or regulation.

3. There are no monitoring wells on the Premises for monitoring hazardous leachate or other hazardous substances or residues.

4. There are no subsurface (underground) tanks situate on the Premises.

5. I have examined or caused to be examined a subsurface segment from the Premises, and based on currently acceptable analytical methods (analysis attached), I find no hazardous waste constituents in reportable quantities which fall within the Definitions or Lists of Hazardous Wastes contained in 40 CFR 261.1 - 40 CFR 261.33, subsections, and appendices.

6. Neither the Premises nor anything located thereon or below the surface thereof is in violation of 42 USC 9601 (RCRA), 42 USC 9601 (Comprehensive Environmental Inspection Compensation and Liability Act ("Superfund")), or any other environmental statute, rule or regulation.

This the _____ day of _____, 1986.

_____
[Environmental Engineer/Civil Engineer/Architect/other]

T. R. EDGERTON, INC.
ENVIRONMENTAL CONSULTANTS
P. O. Box 1307
Cary, North Carolina 27511

919/469-9795
December 18, 1986

Mr. Quint Barefoot
Four Seasons Industrial Services, Inc.
P.O. Box 7217
Greensboro, NC 27407

Re: Site Questionnaire - Annandale Corporation Property

Dear Mr. Barefoot:

Please find attached information collected from site visit and discussion with Bob Stewart of Annandale Corporation. The format for the questionnaire was developed from standard format issued by the State of New Jersey Environmental Cleanup Responsibility Act.

The majority of information needed to complete the form will be developed during the sub-surface investigation of the afore mentioned property.

If you have any questions concerning the information provided, please don't hesitate to call.

Very truly yours,

Thomas R. Edgerton, FAIC, CPC
President

TRE/dr

Environmental Industrial Site
Evaluation
as adopted from
New Jersey Environmental Cleanup Responsibility Act (ECRA)

Date: 19 December 1986

1. A. Industrial Establishment:

Name: The Annandale Corp. Telephone No.: 704-588-1820

Street Address: 11750 Fruehauf Dr.

City or Town: Charlotte State: NC Zip Code: 28210

Municipality: Charlotte County: Mecklenburg

B. Parcel No: 201-161-23 Tax Block Number: _____

C. Standard Industrial Classification (SIC) Number: 2898

D. Current Owner (Property):

Name: The Annandale Corp. Telephone No.: 704-588-1820

Firm: The Annandale Corporation

Street Address: 11750 Fruehauf Drive

Municipality: Charlotte State: NC Zip Code: 28210

E. Current Operator of Industrial Establishment:

Name: Annandale Corp. Telephone No.: 704-588-1820

Firm: The Annandale Corporation

Street Address: 11750 Fruehauf Drive

Municipality: Charlotte State: NC Zip Code: 28210

F. Current Owner (Business, if different from operator):

Name: _____ Telephone No.: _____

Firm: _____

Street Address: _____

Municipality: _____ State: _____ Zip Code: _____

G. If the Industrial Establishment discharges sanitary and/or industrial wastes to a publicly-owned treatment plant, provide the name and address of that facility.

Name: McAlpine Creek Charlotte/ Mecklenburg Utilities Dept. Telephone No. 704-542-1391

Street Address: Hwy. 5215 Ronny Jennings (contact)

Municipality: Pineville State: NC Zip Code: 28134

Is a septic system used (or used previously) at the site? ___Yes X No

H. Has an environmental audit site assessment been performed at this location ___Yes x No If so, when? _____

For what reason _____

Final disposition _____

I. How is this Industrial Establishment heated? (gas, oil, electricity)

Dual Burner Oil/Gas

2. List previous activities at the location(s) involved (attach additional sheets if necessary). In addition to describing the activities, list the business names(s), current address(es) and dates of ownership/operation of the previous activity(ies), if known.

Prior to current owner land understood to be farmland.

3. If the transaction initiating a site assessment/environmental audit the cessation of operations at this location, fill in the date of public release of the decision to close the facility and enclose a copy of the public announcement. Is a cession of operations involved? ___Yes _x_No

   Date of the public release of the decision _____

   Is the public release enclosed? ____Yes ____No

   If you checked "no", state the reason(s) Private Sale

   _____

   _____

4. If the transaction initiating a site assessment/environmental audit is an agreement of sale or option to purchase, fill in the date of the execution of that instrument plus provide a copy of the document _____

   A. Is a sale involved? _x_Yes ___No

   B. Date of Agreement _____

   C. Is a copy of the agreement of sale or option to purchase attached? ____Yes ____No

      If you checked "no", state the reason(s) _____

      _____

   D. Clearly describe the transaction in terms of the action which initiates the site assessment/environmental audit (e.g., sale of real estate only, sale of real estate and business, cessation of operations only, etc.):

      _____

      _____

      _____

E. List other parties (purchasers) to the transaction:

| Name | Street Address and Municipality | Phone No. |
|---|---|---|
| | | |
| | | |
| | | |

5. Actual date proposed for closure of operations or transfer of title:

6. List all federal and state environmental permits applied for and received at this facility (attach additional sheets if necessary).

Check here if no permits are involved: X

A. Air Quality Permits (See Exhibit B)

| Permit No. | Certificate No. | Date of Approval or | Reason for Denial (if applicable) | Expiration Date |
|---|---|---|---|---|
| | 10-0070 | 6/25/84 | N/A | 3/31/87 |
| | | | | |
| | | | | |

B. State Pollutant Discharge Elimination System

| Number | Discharge Activity | Date Issued or Denied | Expiration Date | Body of Water Discharged Into |
|---|---|---|---|---|
| | | | | |
| | | | | |

C. United States Environmental Protection Agency (EPA) Identification Number and copy of the most recent generator Annual Report prepared .

I.D.# N/A

Is a copy of the Annual Report Attached? ___Yes X No

D. All other federal, state, local governmental permits.

| Agency Issuing Permit | Permit Number | Date of Approval or Denial | Expiration Date |
|---|---|---|---|
| N/A | | | |
| | | | |
| | | | |
| | | | |

7. If applicable, identify all administrative orders, temporary or permanent injunctions, civil administrative penalties, or criminal actions concerning the environment issued against the facility, its owners, or managers during the last ten years.

Check here if no enforcement actions are involved N/A

A. Date of Action N/A

Section of Law or Statute violated _____

Type of Enforcement Action _____

Description of the Violation _____

How was the violation resolved? _____

8. Date of Action N/A

Section of Law or Statue violated _____

Type of Enforcement Action _____

Description of the Violation _____

_____

_____

_____

How was the violation resolved? _____

_____

_____

_____

(Add additional pages, if necessary)

Environmental Site Evaluation
Submission
as adopted from
New Jersey Environmental Cleanup Responsibility Act (ECRA)

Date: 19 December 1986

Name of Industrial Establishment: Annandale Corporation

Address: 11750 Fruehauf Drive

City or Town: Charlotte Zip Code: 28210

Municipality: Charlotte County: Mecklenburg

Name of Property Owner: Annandale Corporation

Firm: Annandale Corporation

Address: 11750 Fruehauf Drive

City or Town: Charlotte Zip Code: 28210

Municipality: Charlotte County: Mecklenburg

Submit the Original Plus Two Copies of the Following:
(Note: Item Fourteen (14) Requires Three Copies)

9. A scaled site map identifying all areas where hazardous substances or wastes have been or currently are generated, manufactured, refined, transported, treated, stored, handled or disposed, above or below ground.
IS THIS MAP ENCLOSED? X Yes (Report _____) ___No

10. A detailed description of the most recent operations and processes at the industrial establishment organized in the form of a narrative report designed to guide the Department step-by-step through a plant evaluation with particular emphasis on areas of the process stream where hazardous substances and wastes are generated, manufactured, refined, transported, treated, stored, handled or disposed on site, above or below ground. Also identify any floor drains with their points of discharge, septic systems if applicable, seepage pits and dry wells. Please note that establishments which ceased production prior to December 31, 1983, but are subject to ECRA because of on-going storage beyond that date, must provide details on past operations.
IS THIS REPORT ENCLOSED? X Yes (See Appendix ____) ___No

If you have checked "no" state the reason(s): _____

11.

A. A description of the types, age (installation date), construction material, capacity, contents, and locations of storage vessels, surface impoundments, landfills, or other types of storage facilities, including drum storage, containing hazardous substances or wastes.

ARE THESE FACILITIES IDENTIFIED ON YOUR SITE MAP OR DESCRIBED IN A NARRATIVE REPORT? _X_ Yes (See Appendix ____) ____ No

If you have checked "no" state the reason(s):_____

_____

_____

_____

B. The integrity of all underground tanks which contain hazardous wastes or substances must be verified. This may be accomplished in one of several ways: (a) Performance of a satisfactory leak test in conformance with Criterion 329 of the National Fire Protection Association or; (b) Performance of subsurface soil investigation (soil borings and analysis), or; (c) Excavate and remove the tank and establish the absence of contamination.

ARE THE RESULTS OF THE LEAK DETECTION TEST OR THE SUBSURFACE INVESTIGATION ENCLOSED? _X_ Yes (See Appendix ____) ____ No

If you have checked "no" state the reason(s):_____

_____

_____

_____

12. A complete inventory of hazardous substances and wastes, including description and locations of all hazardous substances or wastes generated, manufactured, refined, transported, treated, stored, handled or disposed on site above and below ground, and a description of the location, types and quantities of hazardous substances and wastes that will remain on site.

| Material | Quantity | Location | Storage Method | To Remain on Site (Yes or No) |
|---|---|---|---|---|
| | | N/A | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

13.

A. A detailed description, date and location on a scaled map of any known spill or discharge of hazardous substances or wastes that occurred during the historical operation of the site and a detailed description of any remedial actions undertaken to handle any spill or discharge of hazardous substances or wastes. (Attach additional sheets if necessary.) NONE

IS THIS INFORMATION ENCLOSED? _x_ Yes (See Appendix ____) ____ No

If you have checked "no" State the Reason(s) _____

Are the spills identified above indicated on the scaled site map?
_x_ Yes ____ No

B. IF is facility has an approved Spill Prevention Control and Countermeasure Plan (SPCC) enclose a copy with this submittal.

IS YOUR SPCC PLAN ENCLOSED? ____ Yes (See Appendix ____)
____ No, this facility is not required to have an SPCC plan

See Exhibit A
Section A.10

14.

A. A detailed sampling or other environmental evaluation measurement plan which includes proposed soil, groundwater, surface water, surface water sediment, and air sampling determined appropriate for the site.

ARE THREE COPIES OF THE SAMPLING PLAN ENCLOSED? ___ Yes (See Appendix ___)
_x_ No

If you have checked "no" state the reason(s): will be provided under total site assessment report.

B. If the sampling plan includes groundwater sampling and, or the installation of monitoring wells, the applicant must complete a "Request for Hydrogeologic Assessment" form (blank form attached).

IS GROUNDWATER SAMPLING PROPOSED? x Yes ___No

Is the "Request for Hydrogeologic assessment form attached?
x Yes (See Appendix ____)
___No

If you have checked "no" state the reason(s):_____

_____

_____

_____

15. A detailed description of the procedures to be used to decontaminate and/or decommission equipment and buildings involved with the generation, manufacture, refining, transportation, treatment, storage, handling, or disposal of hazardous wastes or substances including the name and location of the transporter the ultimate disposal facility, and any other organizations involved.

IS THE DETAILED DESCRIPTION ENCLOSED? ___Yes (see Appendix ____)
x No

If you have checked "no", state the reason(s): will be provided

with total site assessment report.

_____

_____

16. Copies of all previous soil, groundwater and surface water sampling results, including effluent quality monitoring, conducted at the site of the industrial establishment during the history of ownership/ operation by the owner or operator. Also include a detailed description of the location, collection, chain of custody, methodology, analyses, laboratory, quality assurance/quality control procedures, and other factors involved in preparation of the sampling results.

ARE HISTORICAL RESULTS ENCLOSED? x Yes (See Appendix ___)
___No

If you have checked "no" state the reason(s):_____

_____

_____

_____

17. List any other information you are submitting or which has been formally requested by this agency:

_____

_____

_____

I hereby certify that the information on this application and any attachments is true.

_____
Signature

_____ Thomas R. Edgerton
Date Name (Print or Type)

President, T. R. Edgerton, Inc.
Title

# Request for Hydrogeologic Assessment

Preparer T. R. Edgerton, Inc. Date 19 December 1986

Name of Industrial Establishment Worth Chemical Corporation

Address P.O. Box 20725

City/Township Greensboro County Guilford

USCS Quadrangle N3507.5 - W80525/7.5 & N3500 - W80525/7.5

Latitude 35° 07' 28" Longitude 80° 58' 00"

1. Attach a site map or photo copy of the USGS "Quad" with the location of the site circled or outlined in RED and any relevant information (e.g., analyses, well logs, etc.) will be furnished with total site assessment.

2. A. Are wells nearby? ____Yes ____No

   B. Are wells contaminated? ____Yes ____No

   C. Is there an imminent health hazard to your knowledge? ___Yes ___No

   D. Mark the location of any known wells near the facility and complete the following if such information is available. Use back of sheet for additional remarks.)

| | Well Owner | Distance from Site (ft) | Depth | Use* | Remarks |
|---|---|---|---|---|---|
| 1. | | | | | |
| 2. | | | | | |
| 3. | | | | | |
| 4. | | | | | |
| 5. | | | | | |

*P = Public Supply F = Irrigation I = Industrial M = Monitoring
D = Domestic

3. Briefly describe the nature of the operation active/inactive at this facility.

See attached report

4. Check known or suspected sources of ground water or soil contamination:

| | | |
|---|---|---|
| ____Drums | ____Spill(s) | ____Lagoon(s) |
| ____Septic Tank(s) | | ____Seepage Pit(s) |
| ____Below-ground Storage | | ____Above-ground Storage |
| ____Landfill(s) | | ____Industrial Accident |
| ____Discharge(s) onto Ground | | ____Other - Explain Below |

5. Additional Comments

EXHIBIT B

MECKLENBURG COUNTY
DEPARTMENT OF ENVIRONMENTAL HEALTH
ENVIRONMENTAL MANAGEMENT DIVISION
AIR QUALITY CONTROL SECTION

Date Issued June 25, 1984

Date Expires March 31, 1987

Certificate Number 10-0070

# CERTIFICATE OF OPERATION

In accordance with the provisions of the Mecklenburg County Air Pollution Control Regulations,

PERMISSION IS HEREBY GRANTED TO

The Annandale Corporation
11750 Fruehauf Drive
Charlotte, North Carolina

FOR THE OPERATION OF

Product line for the mixing of various surfacants, esters and oils with production not to exceed 50,000,000 #/yr and total hydrocarbon emissions are to be less than 200,000 #/yr.

This certificate shall be effective from July 16, 1984 until March 31, 1987 unless sooner revoked and shall be subject to the following specified conditions and limitations:

1. This certificate can be revoked at any time that it is found that said equipment operates or is operated in such a manner that it no longer complies with the provisions of the Mecklenburg County Air Pollution Control Regulations.

2. Unauthorized modifications, repairs, or alterations to the said equipment, which change its emission characteristics, will be cause for revocation of this certificate.

3. This certificate shall not exempt the holder from prosecution for emissions or discharge of air pollutants prohibited by the Mecklenburg County Air Pollution Control Regulations.

4. The owner or operator shall submit all reports as may be required by the Mecklenburg County Department of Environmental Health.

5. Less than five (5) percent of the total amount of products comprised of the various surfactants, esters and oils shall be hydrocarbon based products.

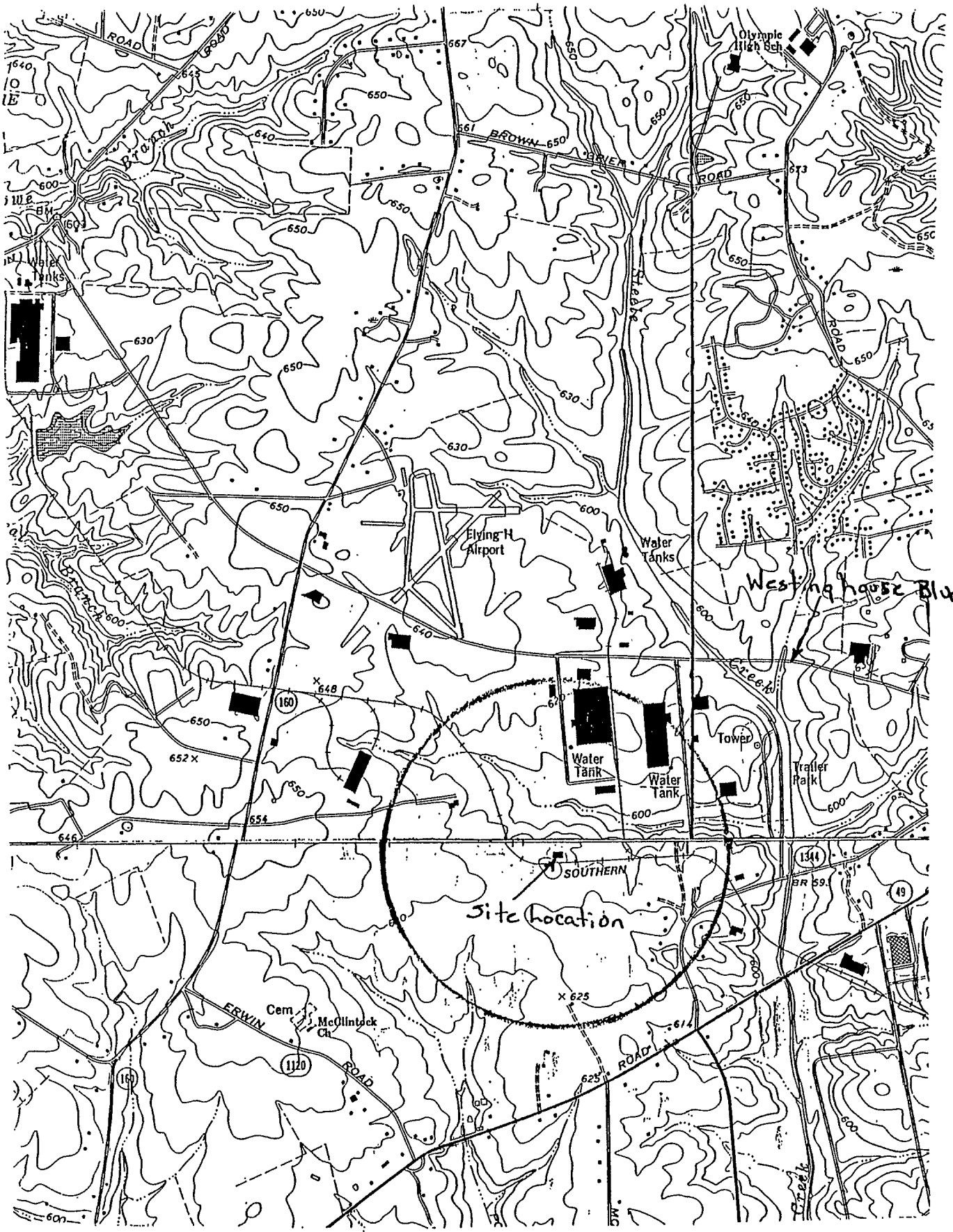
Dan Gardin
Department Representative

POST IN CONSPICUOUS

PLACE NEAR EQUIPMENT

1/78

Figures

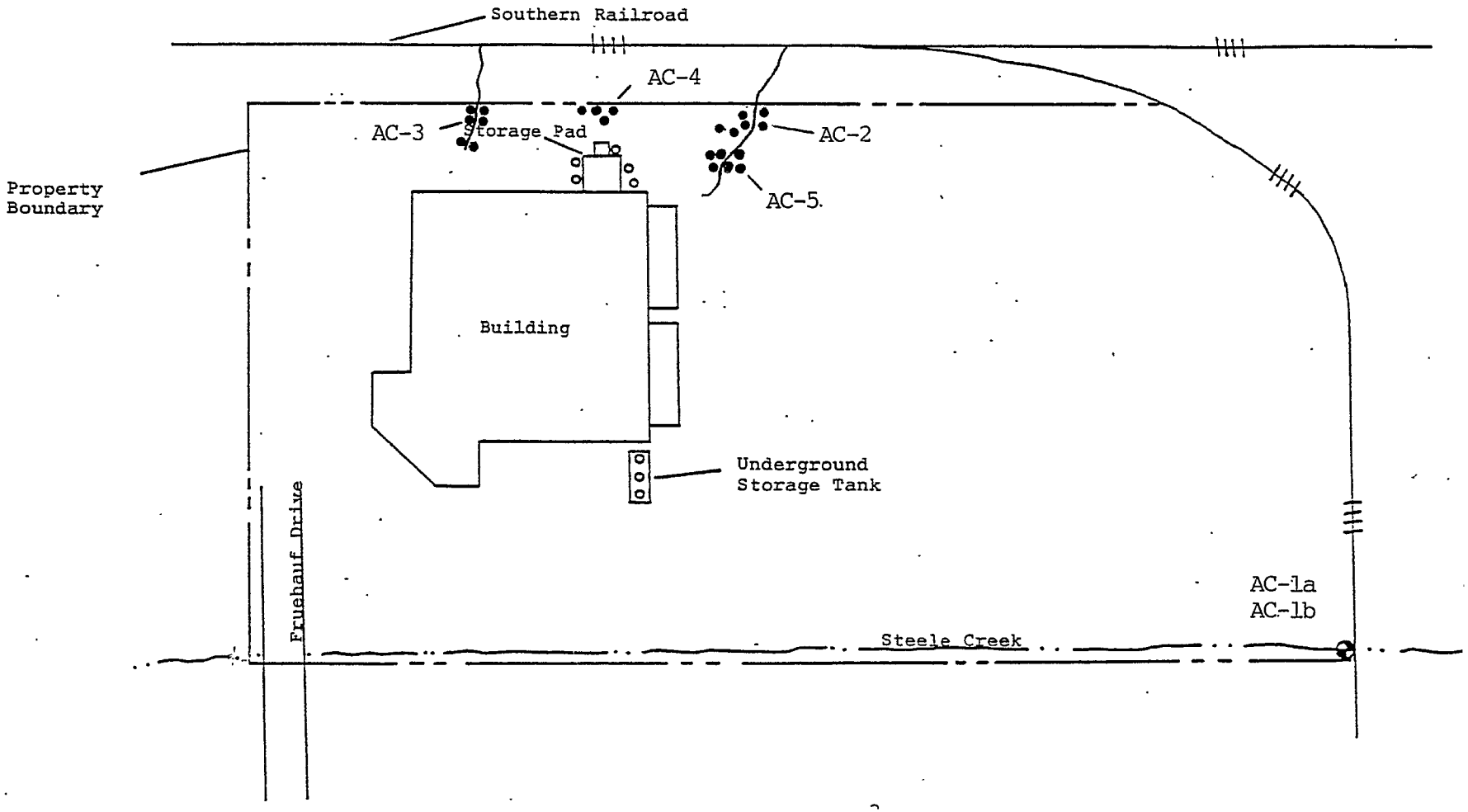



T. R. Edgerton, Inc.
Environmental Consultants

Worth Site Assessment/Annandale

Figure 1

Sampling Location Map

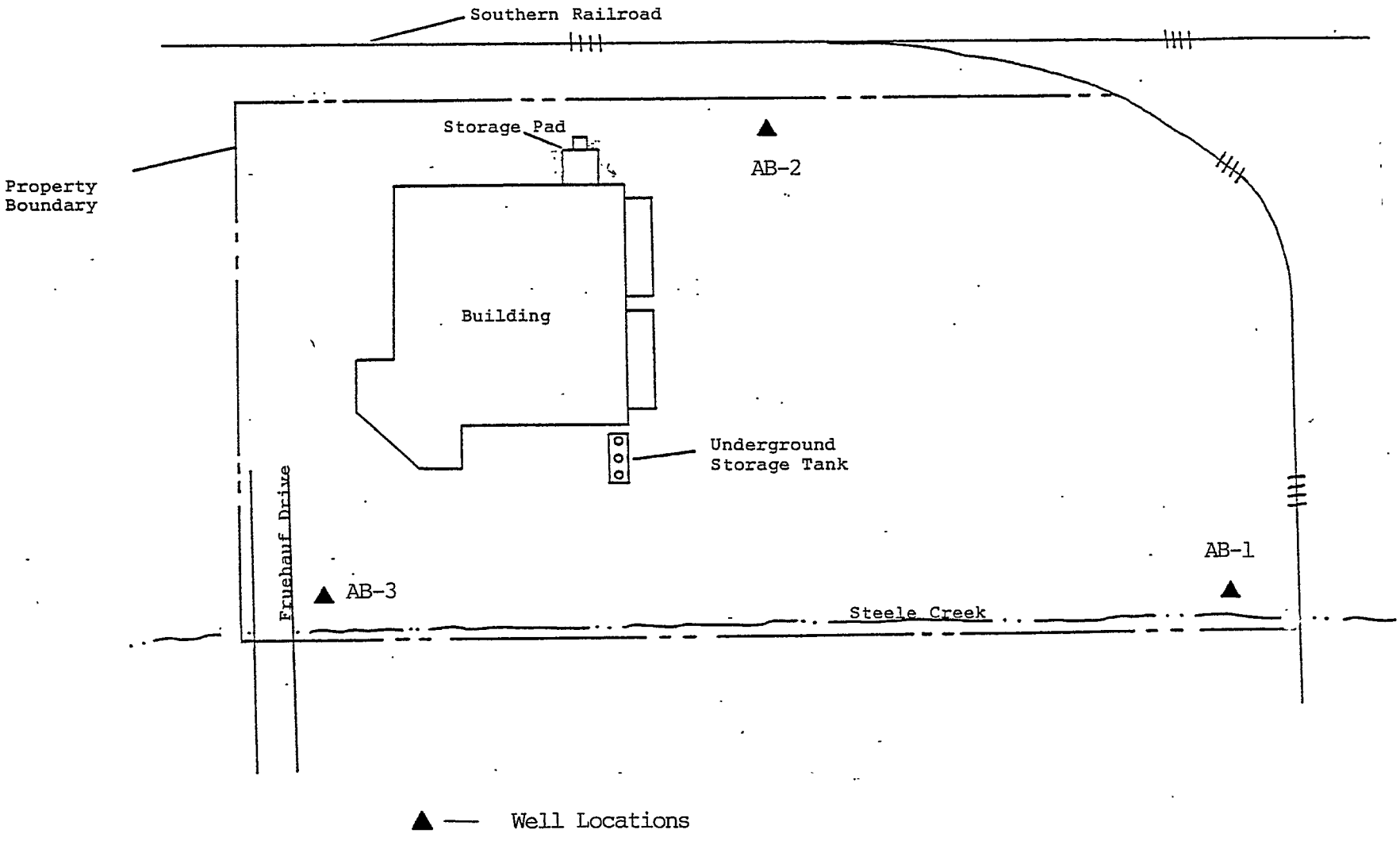



• Composite Soil Sampling Points

Stream Water and Sediment Sampling Location

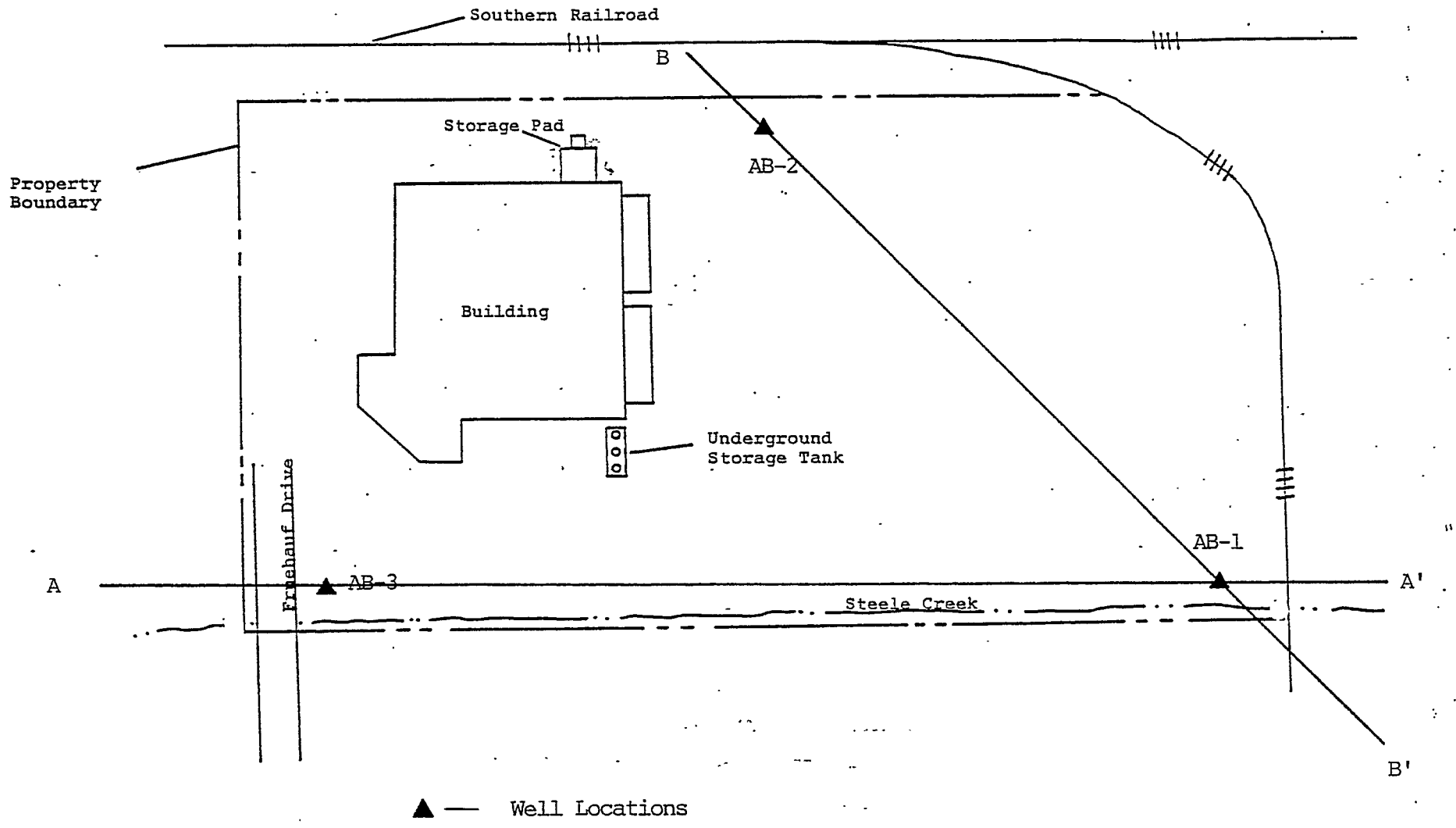
| | | |
|---|---|---|
| Annandale Corporation<br>Charlotte, North Carolina | TREI<br>ENVIRONMENTAL CONSULTANTS | Scale: Not to Job No. 1052-003<br>Fig. No. 2 |

Monitor Well Location Map

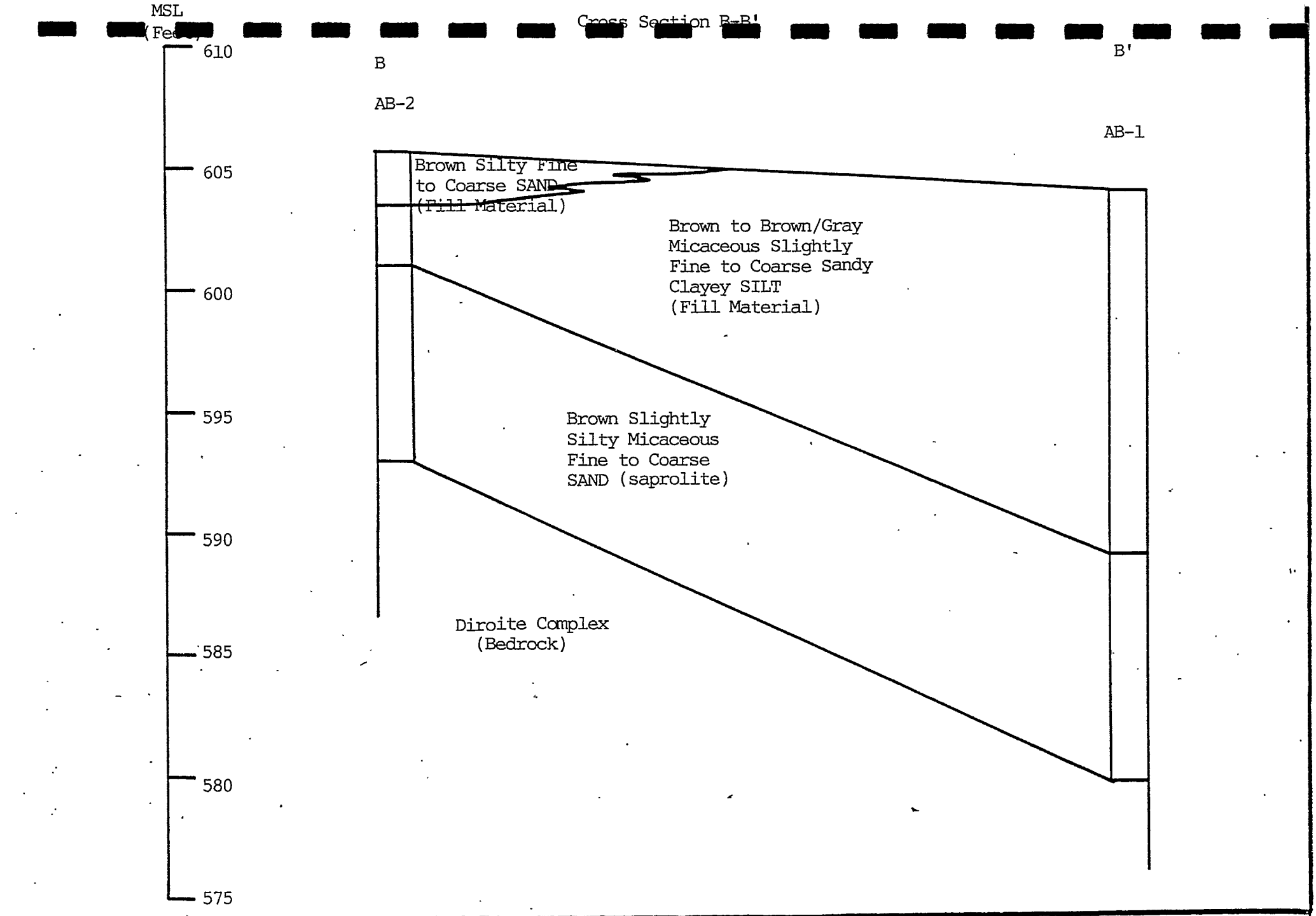



| | | |
|---|---|---|
| Annandale Corporation<br>Charlotte, North Carolina | TREI<br>ENVIRONMENTAL CONSULTANTS | Scale: Not to Job No. 1052-003<br>Fig. No. 3 |

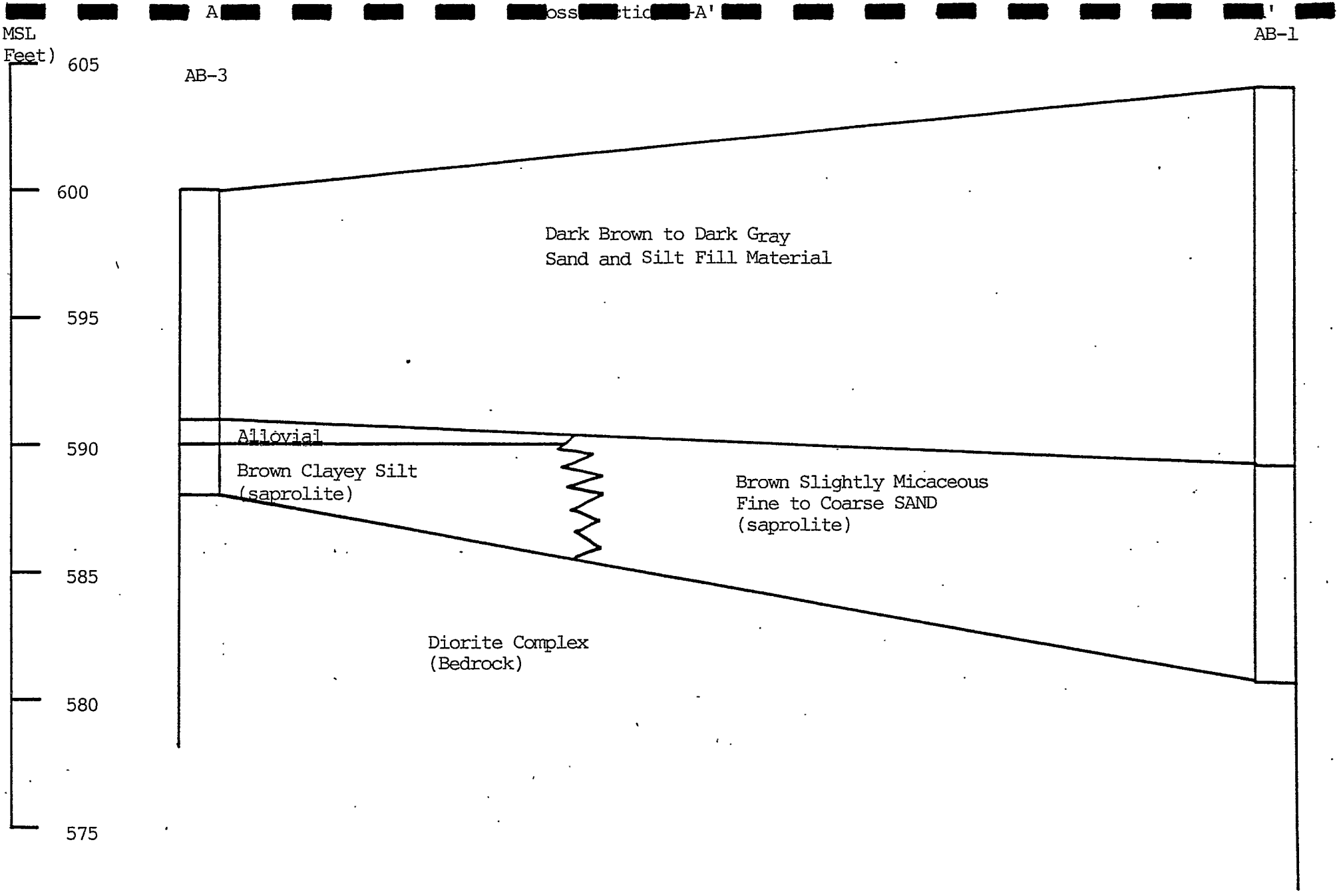
Cross-Section Location Map




| | | |
|---|---|---|
| Annandale Corporation<br>Charlotte, North Carolina | TREI<br>ENVIRONMENTAL CONSULTANTS | Scale: Not to Scale Job No. 1052-003<br>Fig. No. 4 |

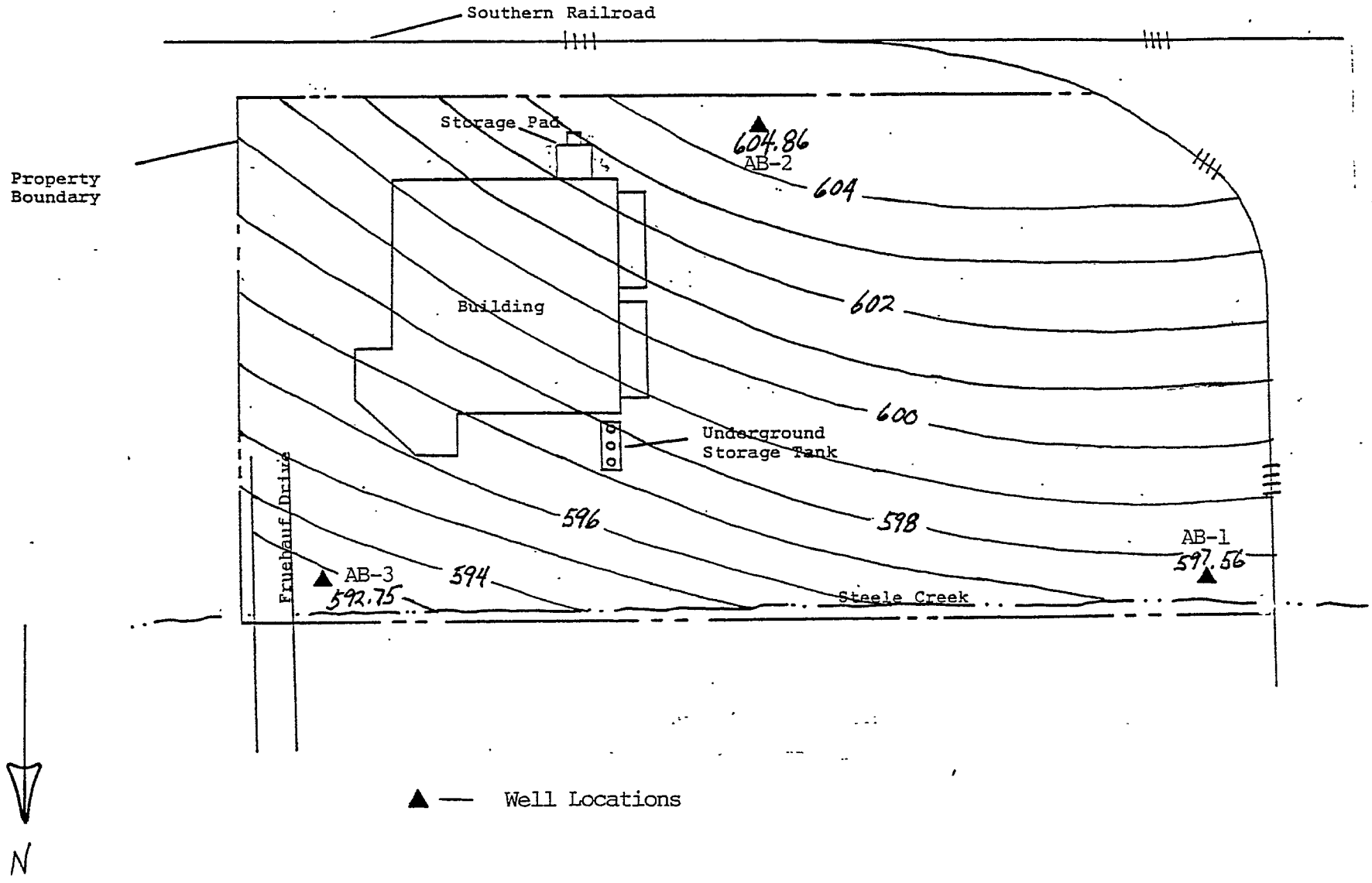



| | | |
|---|---|---|
| Annandale Cross-Section<br>B-B' | TREI<br>ENVIRONMENTAL CONSULTANTS | Scale: Not to Job No. 1052-003<br>Fig. No. 6 |




| | | |
|---|---|---|
| Annandale Cross-Section<br>A-A' | TREI<br>ENVIRONMENTAL CONSULTANTS | **Scale:** Not to **Job No.** 1052-003<br>**Fig. No.** 5 |

Groundwater Contour Map
for 2-13-87




| | | |
|---|---|---|
| Annandale Corporation<br>Charlotte, North Carolina | TREI<br>ENVIRONMENTAL CONSULTANTS | Scale: Not To Job No. 1052-003<br>Fig. No. 7 |

Attachments

Chain-of-Custody

**T.R. Edgerton, Inc.**

10

975 Walnut Street
Cary, N.C. 27511

## CHAIN OF CUSTODY RECORD

| PROJ. NO. | PROJECT NAME |
|---|---|
| 1052-003 | Annandale |

SAMPLERS: *(Signature)* Jeri L. Moore

| STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CON-TAINERS | BNA | VOA | PEST/PCB | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AB-1 | 1-9-87 | 905 | | ✓ | | 7 | 3 | 2 | 2 | | | | |
| AB-2 | 1-9-87 | 945 | | ✓ | | 7 | 3 | 2 | 2 | | | | |
| AB-3 | 1-9-87 | 1015 | | ✓ | | 7 | 3 | 2 | 2 | | | | |
| | | | | | | | | | | | | | 114404 |
| | | | | | | | | | | | | | 405 |
| | | | | | | | | | | | | | 406 |
| | | | | | | | | | | | | | 407 |
| | | | | | | | | | | | | | 408 |
| | | | | | | | | | | | | | 409 |
| | | | | | | | | | | | | | 412 |
| | | | | | | | | | | | | | 413 |
| | | | | | | | | | | | | | 414 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| Relinquished by: *(Signature)* | Date / Time | Received by: *(Signature)* | Relinquished by: *(Signature)* | Date / Time | Received by: *(Signature)* |
|---|---|---|---|---|---|
| Jeri L. Moore | 1-9-87 14:10 | | | | |
| Relinquished by: *(Signature)* | Date / Time | Received by: *(Signature)* | Relinquished by: *(Signature)* | Date / Time | Received by: *(Signature)* |
| | | | | | |
| Relinquished by: *(Signature)* | Date / Time | Received for Laboratory by: *(Signature)* | Date / Time | Remarks | |
| | | | 1/9/87 2:15pm | | |

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

(16)

T.R. Edgerton, Inc.

975 Walnut Street
Cary, N.C. 27511

CHAIN OF CUSTODY RECORD

| PROJ. NO. | PROJECT NAME |
|---|---|
| 1052-003 | Worth (Annandale) |

SAMPLERS: (Signature) Pelhonela

| STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CONTAINERS | BNA | TEST PCB | VOA | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC-1a | 1-5-87 | 2:00 pm | | ✓ | influent stream $H_2O$ | 9 | x | x | x | | | | ~~5~~ 5 one-liter bottle + 4 vials |
| AC-1b | " | " | ✓ | | influent stream sediment | 1 | x | x | x | | | | |
| AC-2 | " | 2:30 | ✓ | | soil (see map) | 1 | x | x | x | | | | |
| AC-3 | " | 3:00 | ✓ | | ~~cff~~ " ~~cff~~ | 1 | x | x | x | | | | |
| AC-4 | " | 3:30 | ✓ | | 114081 " 114097 | 1 | x | x | x | | | | |
| | | | | | 082 ↓ | | | | | | | | |
| | | | | | 083 114101 | | | | | | | | |
| | | | | | 086 | | | | | | | | |
| | | | | | 087 | | | | | | | | |
| | | | | | 090 | | | | | | | | |
| | | | | | 092 | | | | | | | | |
| | | | | | 093 | | | | | | | | |
| | | | | | 094 | | | | | | | | |
| | | | | | 095 | | | | | | | | |

SHIPPING DATE: 12-05-86
ORDER # : 10322
SS # : 16198
RECEIVED: 1/05/86
CLIENT: T.R. EDGERTON INC.

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
|---|---|---|---|---|---|
| | | | | | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
| | | | | | |
| Relinquished by: (Signature) Pelhonela | Date / Time 1/6/87 10:07 am | Received for Laboratory by: (Signature) | Date / Time 1/6/87 1010 | Remarks | |

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

P.R. Edgerton, Inc.
975 Walnut Street
Cary, N.C. 27511

# CHAIN OF CUSTODY RECORD

| PROJ. NO. | PROJECT NAME |
|---|---|
| 1052-003 | Annandale |

SAMPLERS: (Signature) Jeri L. Moore

| STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CONTAINERS | Base-Neutrals | REMARKS |
|---|---|---|---|---|---|---|---|---|
| AC-5 | 1-27-87 | 1330 | ✓ | | CC# 10705 | 1 | 1 | |
| | | | | | CC# 116482 | | | |

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
|---|---|---|---|---|---|
| Jeri L. Moore | 1/27/87 5:30 | | | | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
| | | | | | |
| Relinquished by: (Signature) | Date / Time | Received for Laboratory by: (Signature) | Date / Time | Remarks | |
| | | Cleans | 1/27/87 5:31 | | |

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

T.R. Edgerton, Inc.
102 F Woodwinds
Industrial Court
Cary, NC 27511

CHAIN OF CUSTODY RECORD

| PROJ. NO. | PROJECT NAME |
|---|---|
| 1052-003 | WORTH-ANNANDALE |

SAMPLERS: (Signature) Jeri L. Moore Joe Matthews

| STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CONTAINERS | Metals | REMARKS |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 5 Day Turnaround |
| AB-3 | 2/13/87 | 8:30 | | ✓ | Well AB-3 | 1 | 1 | Arsenic, Barium, Cadmium, Chromium |
| BLANK | 2/13/87 | 8:30 | | ✓ | Baier Blank | 1 | 1 | Lead, Nickel, Selenium, Zinc |
| | | | | | | | | for both samples |

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
|---|---|---|---|---|---|
| Jeri L. Moore | 2/13/87 1:00 | | | | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
| | | | | | |
| Relinquished by: (Signature) | Date / Time | Received for Laboratory by: (Signature) | Date / Time | Remarks | |
| | | L Wood | 2/13/87 1300 | 5 Day Turnaround | |

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

[redacted] R. [redacted] Edgerton, [redacted] Inc. [redacted]

975 Walnut Street
Cary, N.C. 27511

# CHAIN OF CUSTODY RECORD

| PROJ. NO. | PROJECT NAME |
|---|---|
| 1052-003 | Work (Annandale) |

SAMPLERS: (Signature)

| STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CONTAINERS | Total metals * | Phenols | Cyanide | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AC-1a | 1-5-87 | 2:00 pm | | ✓ | influent stream H2O | 1 | x | x | x | | | | * Cd, Cr, Pb, Hg, As, |
| AC-1b | " | " | ✓ | | influent stream sed. | 1 | x | x | x | | | | Se, Ag, Zn, Ni, Ba |
| AC-2 | " | 2:30 | ✓ | | soil | 1 | x | x | x | | | | |
| AC-3 | " | 3:00 | ✓ | | " | 1 | x | x | x | | | | |
| AC-4 | " | 3:30 | ✓ | | " | 1 | x | x | x | | | | |

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
|---|---|---|---|---|---|
| | | | | | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
| | | | | | |
| Relinquished by: (Signature) | Date / Time | Received for Laboratory by: (Signature) | Date / Time | Remarks | |
| [redacted] | 1/6/87 8:17 | [redacted] | 1-6-87 0817 | | |

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

T.R. Edgerton, Inc.
975 Walnut Street
Cary, N.C. 27511

# CHAIN OF CUSTODY RECORD

| PROJ. NO. | PROJECT NAME |
|---|---|
| 1052-003 | Annandale |

SAMPLERS: (Signature) Teri L. Moore

| STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CONTAINERS | Total Metals | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AB-1 | 1-9-87 | 905 | | V | | 1 | 1 | | | | | | Cd, Cr, Pb, Hg, As, Se, Ag, Zn, Ni, BA, Phenols, Cyanide on all three samples |
| AB-2 | 1-9-87 | 945 | | V | | 1 | 1 | | | | | | |
| AB-3 | 1-9-87 | 1015 | | V | | 1 | 1 | | | | | | |

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
|---|---|---|---|---|---|
| Teri L. Moore | 1-9-87 3:00 | | | | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
| | | | | | |
| Relinquished by: (Signature) | Date / Time | Received for Laboratory by: (Signature) | Date / Time | Remarks | |
| | | S. Wood | 1-9-87 1500 | | |

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

Boring Logs
Well Schematics
Well Construction Record

| DEPTH FT. | DESCRIPTION | ELEV. ● PENETRATION-BLOWS PER FT. 0 10 20 30 40 60 80 100 |
|---|---|---|
| 0 | Brown to Brown/Gray Micaceous Slightly Fine Sandy Clayey SILT (Fill) | 8, 10, 5 |
| 15.0 | Brown Slightly Silty Micaceous Fine to Coarse SAND (Saprolite) | 50/5, 50/5 |
| 24.4 | Boring Terminated at 24.4 Feet in SAND | 50/4 |

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

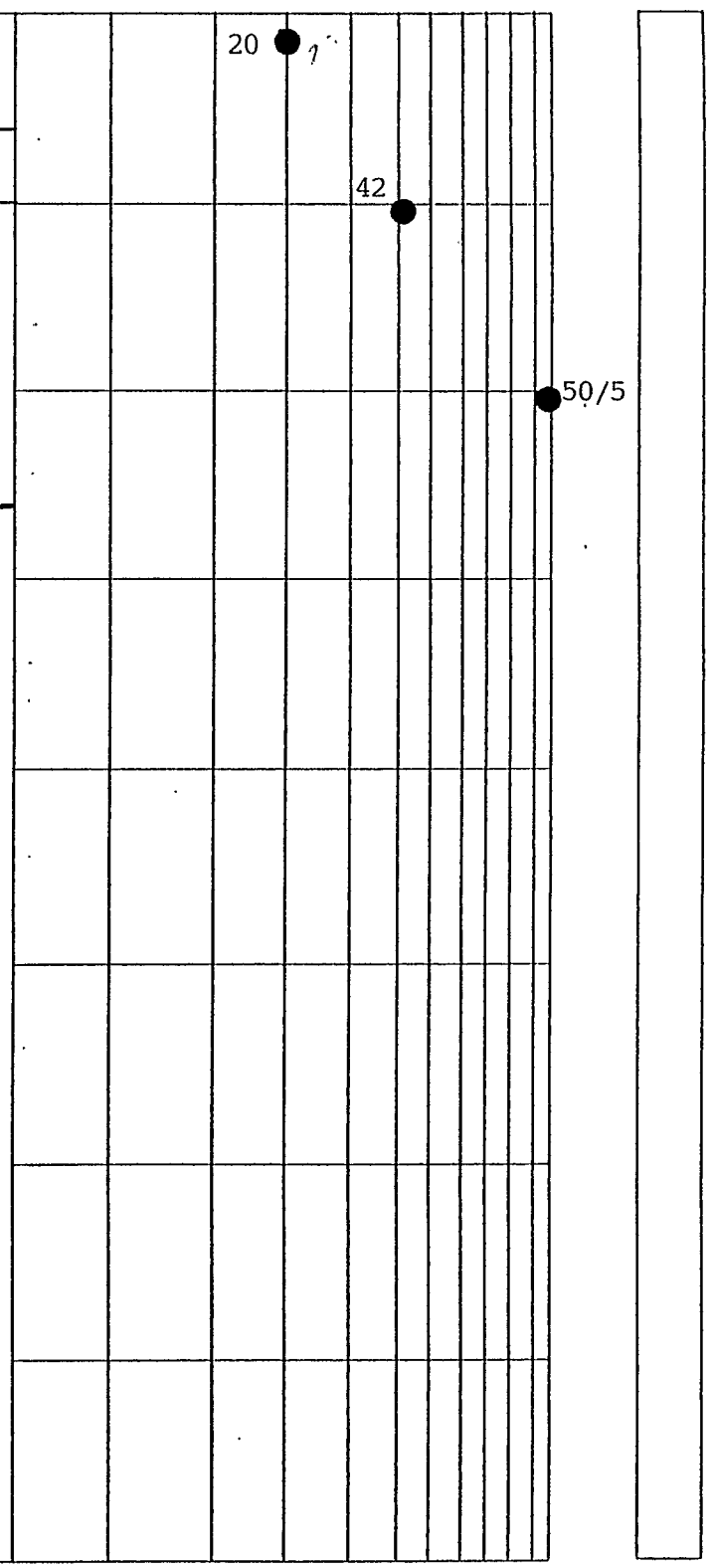
UNDISTURBED SAMPLE
50% ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE — 24 HR.
WATER TABLE — 1 HR.

# TEST BORING RECORD

BORING NO. AB-1
DATE DRILLED 1/6/87
JOB NO. 1052-003

**T.R. EDGERTON, INC.**

| DEPTH FT. | DESCRIPTION | ELEV. |
|---|---|---|
| 0 | Brown Silty Fine to Coarse SAND (Fill) | |
| 3.0 | Brown Micaceous Clayey Fine to Coarse Sandy SILT (Fill) | |
| 5.0 | Brown Silty Fine to Coarse SAND (Saprolite) | |
| 13.0 | Boring Terminated at 13.0 Feet Auger Refusal | |




BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE
50% ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE — 24 HR.
WATER TABLE — 1 HR.

# TEST BORING RECORD

BORING NO. AB-2
DATE DRILLED 1/7/87
JOB NO. 1052-003

**T.R. EDGERTON, INC.**

| DEPTH FT. | DESCRIPTION | ELEV. | ● PENETRATION-BLOWS PER FT. 0 10 20 30 40 60 80 100 |
|---|---|---|---|
| 0 | Dark Brown Fine to Medium Sandy SILT Grading into Brown Silty Fine to Coarse SAND with Clay Nodules (Fill material) | | ● 5 |
| 4.0 | Brown Micaceous Fine Sandy SILT Grading into Dark Gray Micaceous Fine to Coarse Sandy SILT (Fill material) | | 7 ● |
| 0 | Brown Silty Fine to Coarse SAND a) | | |
| 10.0 | Brown Clayey SILT (saprolite) | | ● 2 |
| 2.0 | Boring Terminated at 12.0 Feet, Auger Refusal | | |

a) alluvial material

BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE
50% ROCK CORE RECOVERY
LOSS OF DRILLING WATER
WATER TABLE — 24 HR.
WATER TABLE — 1 HR.

## TEST BORING RECORD

BORING NO. AB-3
DATE DRILLED 1/7/87
JOB NO. 1052-003

**T.R. EDGERTON, INC.**

# WELL SCHEMATIC

Well No AB-1

Date Drilled 1/6/87

Drilling Method Hollow Stem Auger

Remarks

Geologist T. Moore

Static Water Level ____ Date ____

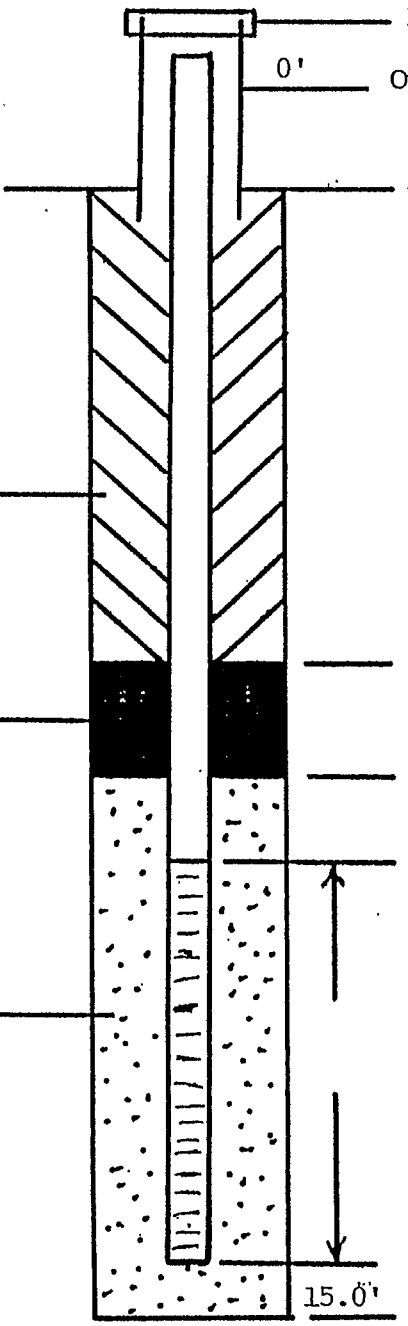
Borehole O.D. 8.0"

Casing O.D. 2.375"

Type PVC

Screen Type PVC

Slot .010"




Note: All Depths Referenced from Ground Surface

PROJECT. Annandale

JOB NO. 1052-086-003

FIGURE NO.

T. R. Edgerton, Inc.

# WELL SCHEMATIC

Well No AB-2

Date Drilled 1/7/87

Drilling Method Hollow Stem Auger

Remarks

Geologist T. Moore

Static Water Level ____ Date ____

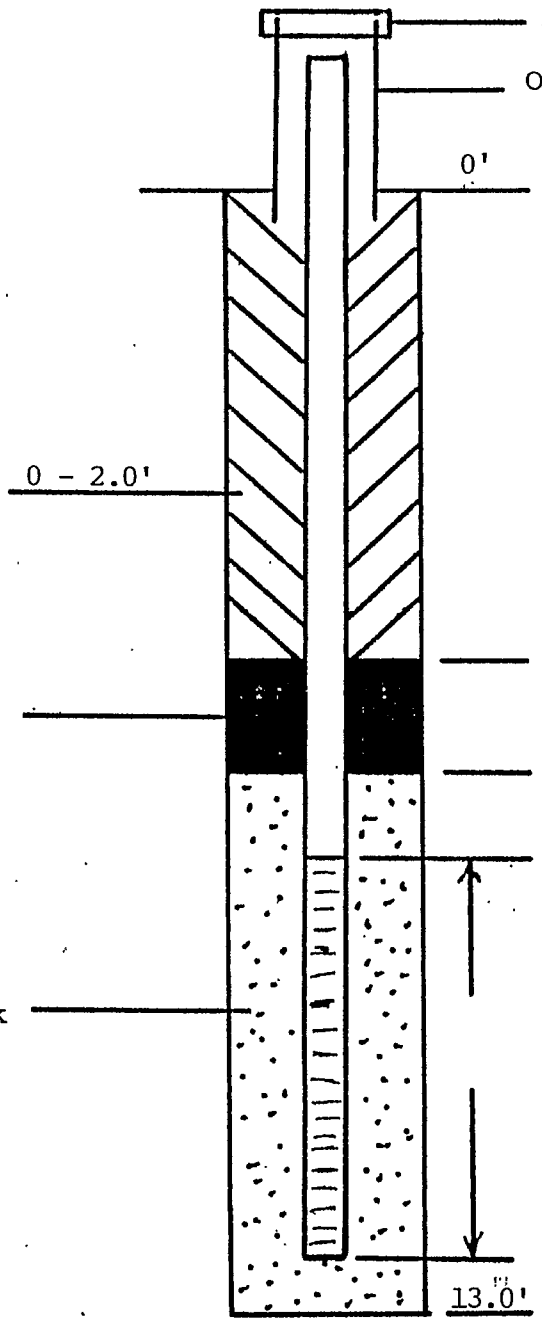
Borehole O.D. 8.0"

Casing O.D. 2.375"

Type PVC

Screen Type PVC

Slot .010"




Note: All Depths Referenced from Ground Surface

| | |
|---|---|
| PROJECT. Annandale | T. R. Edgerton, Inc. |
| JOB NO. 1052-086-003 | |
| FIGURE NO. | |

# WELL SCHEMATIC

Well No AB-3

Date Drilled 1/7/87

Drilling Method Hollow Stem Auger

Remarks

Geologist T. Moore

Static Water Level ____ Date ____

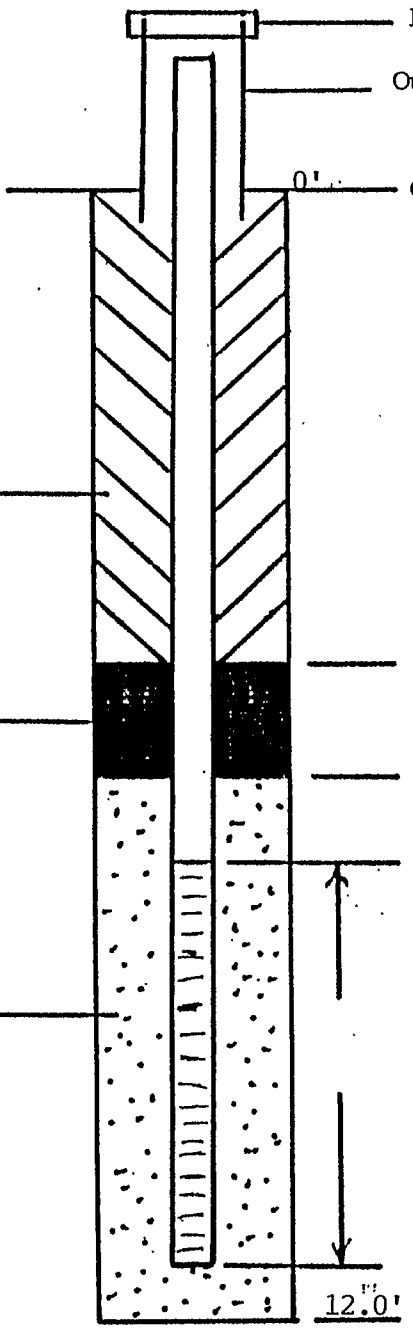
Borehole O.D. 8.0"

Casing O.D. 2.375"

Type PVC

Screen Type PVC

Slot .010"




Note: All Depths Referenced from Ground Surface

PROJECT. Annandale

JOB NO. 1052-086-003

FIGURE NO.

T. R. Edgerton, Inc.

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT – GROUNDWATER SECTION
P.O. BOX 27687 – RALEIGH,N.C. 27611, PHONE (919) 733-5083

FOR OFFICE USE ONLY
Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc ____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

# WELL CONSTRUCTION RECORD

AB-1

DRILLING CONTRACTOR ATEC Associates, Inc.
DRILLER REGISTRATION NUMBER 696

STATE WELL CONSTRUCTION PERMIT NUMBER: 59-0603-WM-0110

WELL LOCATION: (Show sketch of the location below)
Nearest Town: Charlotte
County: Mecklenburg
(Road, Community, or Subdivision and Lot No.)
OWNER Worth Chemical
ADDRESS Segal Blvd. (Street or Route No.)
Greensboro (City or Town) NC (State) (Zip Code)
DATE DRILLED _____ USE OF WELL Monitor
TOTAL DEPTH _____ CUTTINGS COLLECTED ☒ Yes ☐ No
DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
STATIC WATER LEVEL: _____ FT. ☐ above ☒ below TOP OF CASING,
TOP OF CASING IS _____ FT. ABOVE LAND SURFACE.
YIELD (gpm): _____ METHOD OF TEST _____
WATER ZONES (depth): _____
CHLORINATION: Type _____ Amount _____

| Depth From | Depth To | DRILLING LOG Formation Description |
|---|---|---|
| 0.0 | 15.0 | Brown to Brown/Gray Micaceous Slightly Fine Sandy Clayey SILT |
| 15.0 | 24.4 | Brown Slightly Silty Micaceous Fine to Coarse SAND (Saprolite) |

If additional space is needed use back of form.

CASING:

| | Depth From | Depth To | Diameter | Wall Thickness or Weight/Ft. | Material |
|---|---|---|---|---|---|
| | | 15.0 Ft. | 2.375" | .303" | PVC |
| | | Ft. | | | |
| | | Ft. | | | |

GROUT:

| | Depth From | Depth To | Material | Method |
|---|---|---|---|---|
| | 0.0 | 2.0 Ft. | Cement | Tremie |
| | | Ft. | | |

SCREEN:

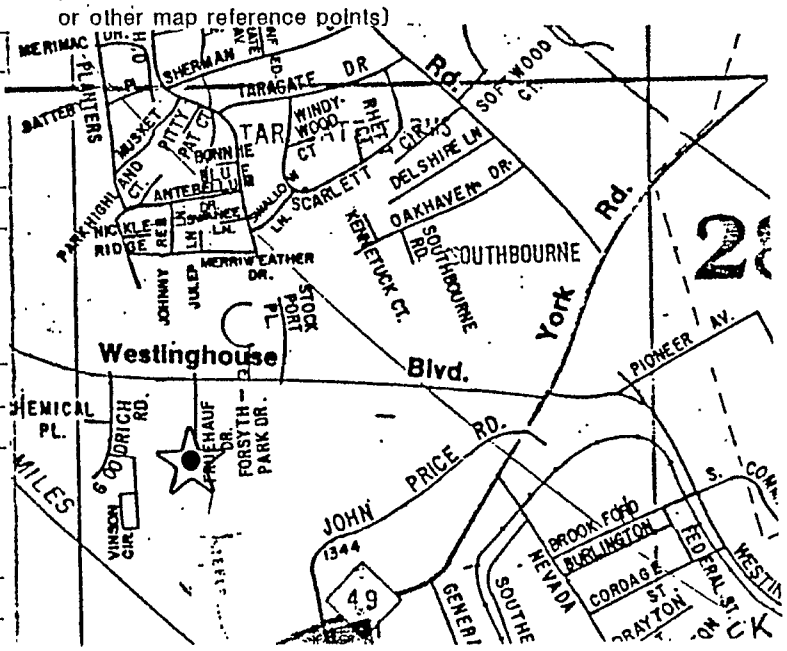
| | Depth From | Depth To | Diameter | Slot Size | Material |
|---|---|---|---|---|---|
| | 5.0 | 15.0 Ft. | 2.375 in. | .010 in. | PVC |
| | | Ft. | in. | in. | |
| | | Ft. | in. | in. | |

GRAVEL PACK: 270 pounds of

| | Depth From | Depth To | Size | Material |
|---|---|---|---|---|
| | 3.0 | 15.0 Ft. | Coarse Sand | Quartz |
| | | Ft. | | |

REMARKS: _____

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)




I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH,N.C. 27611, PHONE (919) 733-5083

FOR OFFICE USE ONLY
Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

# WELL CONSTRUCTION RECORD

AB-2

RILLING CONTRACTOR ATEC Associates, Inc.
RILLER REGISTRATION NUMBER 696

STATE WELL CONSTRUCTION
PERMIT NUMBER: 59-0603-WM-0110

WELL LOCATION: (Show sketch of the location below)
Nearest Town: Charlotte
County: Mecklenburg
(Road, Community, or Subdivision and Lot No.)
OWNER Worth Chemical
ADDRESS Segal Blvd. (Street or Route No.)
Greensboro NC
City or Town State Zip Code
DATE DRILLED 1/7/87 USE OF WELL Monitor
TOTAL DEPTH 13.0' CUTTINGS COLLECTED ☒ Yes ☐ No
DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
STATIC WATER LEVEL: _____ FT. ☐ above ☒ below TOP OF CASING,
TOP OF CASING IS _____ FT. ABOVE LAND SURFACE.
YIELD (gpm): _____ METHOD OF TEST _____
WATER ZONES (depth): _____
CHLORINATION: Type _____ Amount _____

DRILLING LOG

| Depth From | Depth To | Formation Description |
|---|---|---|
| 0.0 | 3.0 | Brown Silty Fine to Coarse SAND |
| 3.0 | 5.0 | Brown Micaceous Clayey Fine to Coarse Sandy SILT Grading into Brown Silty Fine to Coarse SAND |
| 5.0 | 13.0 | Brown Silty Fine to Coarse SAND (Saprolite) |

If additional space is needed use back of form.

CASING:

| | Depth From | Depth To | Diameter | Wall Thickness or Weight/Ft. | Material |
|---|---|---|---|---|---|
| | _____ | 13.0 Ft. | 2.375" | .303" | PVC |
| | _____ | _____ Ft. | _____ | _____ | _____ |
| | _____ | _____ Ft. | _____ | _____ | _____ |

GROUT:

| | Depth From | Depth To | Material | Method |
|---|---|---|---|---|
| | 0.0 | 2.0 Ft. | Cement | Tremie |
| | 2.0 | 4.0 Ft. | Volclay | Tremie |

SCREEN:

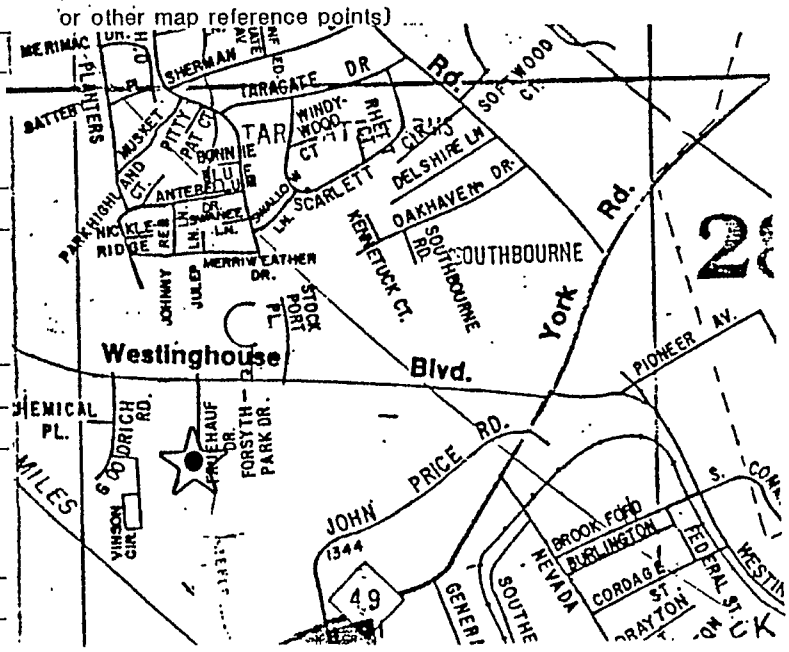
| | Depth From | Depth To | Diameter | Slot Size | Material |
|---|---|---|---|---|---|
| | 5.0 | 13.0 Ft. | 2.375 in. | .010 in. | PVC |
| | _____ | _____ Ft. | _____ in. | _____ in. | _____ |
| | _____ | _____ Ft. | _____ in. | _____ in. | _____ |

GRAVEL PACK: 180 pounds of

| | Depth From | Depth To | Size | Material |
|---|---|---|---|---|
| | 4.0 | 13.0 Ft. | Coarse Sand | Quartz |
| | _____ | _____ Ft. | _____ | _____ |

REMARKS: _____

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)




I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH,N.C. 27611, PHONE (919) 733-5083

FOR OFFICE USE ONLY
Quad. No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

# WELL CONSTRUCTION RECORD

AB-3

DRILLING CONTRACTOR ATEC Associates, Inc.
DRILLER REGISTRATION NUMBER 696

STATE WELL CONSTRUCTION PERMIT NUMBER: 59-0603-WM-0110

1. WELL LOCATION: (Show sketch of the location below)
Nearest Town: Charlotte County: Mecklenburg
(Road, Community, or Subdivision and Lot No.)

2. OWNER Worth Chemical
ADDRESS Segal Blvd. (Street or Route No.)
Greensboro NC
City or Town State Zip Code

3. DATE DRILLED 1/7/87 USE OF WELL Monitor
4. TOTAL DEPTH 12.0' CUTTINGS COLLECTED ☒ Yes ☐ No
5. DOES WELL REPLACE EXISTING WELL? ☐ Yes ☒ No
6. STATIC WATER LEVEL: _____ FT. ☐ above ☒ below TOP OF CASING,
TOP OF CASING IS _____ FT. ABOVE LAND SURFACE.
7. YIELD (gpm): _____ METHOD OF TEST _____
8. WATER ZONES (depth): _____
9. CHLORINATION: Type _____ Amount _____
10. CASING:

| | Depth | | Diameter | Wall Thickness or Weight/Ft. | Material |
|---|---|---|---|---|---|
| From | _____ | To 12.0' Ft. | 2.375" | .303" | PVC |
| From | _____ | To _____ Ft. | | | |
| From | _____ | To _____ Ft. | | | |

11. GROUT:

| | Depth | | Material | Method |
|---|---|---|---|---|
| From | 0.0 | To 2.0 Ft. | Cement | Tremie |
| From | 2.0 | To 4.0 Ft. | Volclay | Tremie |

12. SCREEN:

| | Depth | | Diameter | Slot Size | Material |
|---|---|---|---|---|---|
| From | 5.0 | To 12.0 Ft. | 2.375 in. | .010 in. | PVC |
| From | _____ | To _____ Ft. | _____ in. | _____ in. | |
| From | _____ | To _____ Ft. | _____ in. | _____ in. | |

13. GRAVEL PACK: 180 pounds of

| | Depth | | Size | Material |
|---|---|---|---|---|
| From | 4.0 | To 12.0 Ft. | Coarse Sand | Quartz |
| From | _____ | To _____ Ft. | | |

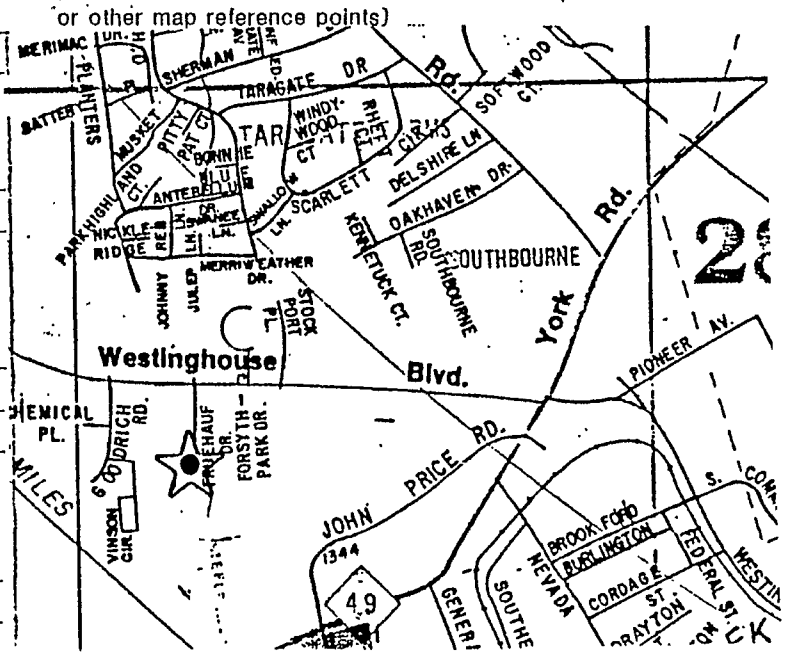
14. REMARKS: _____

DRILLING LOG

| Depth From | Depth To | Formation Description |
|---|---|---|
| 0.0 | 4.0 | Dark Brown Fine to Medium Sandy SILT Grading into Brown Silty Fine to Coarse SAND with Clay Nodules |
| 4.0 | 9.0 | Brown Micaceous Fine Sandy SILT Grading into Dark Gray Micaceous Fine to Coarse Sandy SILT |
| 10.0 | 12.0 | Brown Clayey SILT |

If additional space is needed use back of form.

LOCATION SKETCH
(Show direction and distance from at least two State Roads, or other map reference points)




I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT DATE

Chemical Testing Results

Inorganics
Soil & Sediment

Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090



Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
Cary, North Carolina 27511

February 5, 1987

Reference: Purchase Order Number 1052-086-003-3

SAMPLE HISTORY

| CLIENT ID | C & ET SAMPLE | DATE RECEIVED | DATE ANALYZED |
|---|---|---|---|
| AC-1a | 5892 | 1/6/87 | 1/6/87 to 2/5/87 |
| AC-1b | 5893 | 1/6/87 | 1/6/87 to 2/5/87 |
| AC-2 | 5894 | 1/6/87 | 1/6/87 to 2/5/87 |
| AC-3 | 5895 | 1/6/87 | 1/6/87 to 2/5/87 |
| AC-4 | 5896 | 1/6/87 | 1/6/87 to 2/5/87 |
| AB-1 | 5994 | 1/9/87 | 1/9/87 to 2/5/87 |
| AB-2 | 5995 | 1/9/87 | 1/9/87 to 2/5/87 |
| AB-3 | 5996 | 1/9/87 | 1/9/87 to 2/5/87 |

Mr. Tom Edgerton
T. R. Edgerton, Inc.

February 5, 1987

## ANALYTICAL RESULTS

I. Soil/Sediment Samples

| PARAMETER | AC-1b | AC-2 | AC-3 | AC-4 |
|---|---|---|---|---|
| Cyanide | 0.50 | 0.52 | 0.21 | 2.21 |
| Phenol | 0.08 | 0.07 | 0.10 | 0.15 |
| Arsenic | 13.8 | 8.09 | 17.4 | 12.9 |
| Barium | 45 | 228 | 154 | 515 |
| Cadmium | 0.90 | 1.44 | 0.70 | 1.11 |
| Chromium | 31.8 | 21.4 | 13.8 | 18.3 |
| Lead | 9.70 | 28.1 | 8.49 | 13.4 |
| Mercury | 0.13 | < 0.01 | 0.03 | < 0.01 |
| Nickel | 27.4 | 30.1 | 19.3 | 283 |
| Selenium | < 0.002 | < 0.002 | < 0.002 | < 0.002 |
| Silver | 0.55 | 1.12 | 0.62 | 1.02 |
| Zinc | 69.5 | 56.2 | 28.4 | 79.9 |
| Percent Solids | 32.3 | 36.8 | 51.7 | 17.0 |

All result units expressed in mg/kg (dry weight)

Inorganics
Stream & Ground-water
Monitor Wells

Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090



Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
Cary, North Carolina 27511

February 5, 1987

Reference: Purchase Order Number 1052-086-003-3

SAMPLE HISTORY

| CLIENT ID | C & ET SAMPLE | DATE RECEIVED | DATE ANALYZED |
|---|---|---|---|
| AC-1a | 5892 | 1/6/87 | 1/6/87 to 2/5/87 |
| AC-1b | 5893 | 1/6/87 | 1/6/87 to 2/5/87 |
| AC-2 | 5894 | 1/6/87 | 1/6/87 to 2/5/87 |
| AC-3 | 5895 | 1/6/87 | 1/6/87 to 2/5/87 |
| AC-4 | 5896 | 1/6/87 | 1/6/87 to 2/5/87 |
| AB-1 | 5994 | 1/9/87 | 1/9/87 to 2/5/87 |
| AB-2 | 5995 | 1/9/87 | 1/9/87 to 2/5/87 |
| AB-3 | 5996 | 1/9/87 | 1/9/87 to 2/5/87 |

Mr. Tom Edgerton
T. R. Edgerton, Inc.

February 5, 1987

II. Water Samples

| PARAMETER | AC-1a | AB-1 | AB-2 | AB-3 |
|---|---|---|---|---|
| Cyanide | < 0.01 | 0.02 | 0.02 | 0.02 |
| Phenol | 0.009 | 0.211 | 0.188 | 0.034 |
| Arsenic | 0.0022 | 0.0234 | 0.0071 | 0.0372 |
| Barium | 0.02 | 0.68 | 0.60 | 1.09 |
| Cadmium | < 0.001 | 0.004 | 0.002 | 0.008 |
| Chromium | 0.010 | 0.026 | 0.011 | 0.102 |
| Lead | 0.022 | 0.050 | 0.037 | 0.094 |
| Mercury | 0.0006 | < 0.0002 | < 0.0002 | 0.0002 |
| Nickel | 0.016 | 0.078 | 0.026 | 0.160 |
| Selenium | < 0.0005 | < 0.0005 | < 0.0005 | 0.0623 |
| Silver | 0.002 | 0.002 | < 0.001 | 0.004 |
| Zinc | 0.044 | 0.072 | 0.048 | 0.142 |

All result units expressed in mg/L.

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

Kenneth L. Jesneck
Lab Manager

KLJ/gw

CTE

# Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090



Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
Cary, North Carolina 27511

February 20, 1987

Reference: Purchase Order Number 1052-003

## SAMPLE HISTORY

| CLIENT ID | C & ET SAMPLE | DATE RECEIVED | DATE ANALYZED |
|---|---|---|---|
| AB3 | 6400 | 2/13/87 | 2/14/87 to 2/19/87 |
| Blank | 6401 | 2/13/87 | 2/14/87 to 2/19/87 |

ANALYTICAL RESULTS

| PARAMETER | METHOD[1] | AB3 | BLANK |
|---|---|---|---|
| Arsenic | 206.2 | < 0.001 | 0.002 |
| Barium | 208.1 | 0.79 | 0.08 |
| Cadmium | 213.1 | < 0.001 | < 0.001 |
| Chromium | 218.1 | 0.047 | 0.030 |
| Lead | 239.1 | 0.037 | 0.033 |
| Nickel | 249.1 | 0.047 | 0.028 |
| Selenium | 270.2 | 0.001 | 0.001 |
| Zinc | 289.1 | 0.022 | 0.031 |

All result units expressed in mg/L.

[1] "Methods for Chemical Analysis of Water and Wastes," EPA 600/4-79-020.

CHEMICAL & ENVIRONMENTAL TECHNOLOGY, INC.

Kenneth L. Jesneck
Lab Manager

KLJ/gw

CAROLINA
CHEMISTS &
CONSULTANTS, Inc.

5500 Commercial Avenue • Raleigh, N.C. 27612 • (919) 787-3061

February 19, 1987
CCC87163

T. R. Edgerton
P. O. Box 1307
Cary, NC 27511

Subject: Analysis of Sample Received 2-13-87

Sample Identification:

1. Well AB-3
Worth-Annandale

RESULTS

| | |
|---|---|
| Arsenic, total as As, mg/l | <0.010 |
| Barium, total as Ba, mg/l | 0.96 |
| Cadmium, total as Cd, mg/l | <0.020 |
| Chromium, total as Cr, mg/l | <0.03 |
| Lead, total as Pb, mg/l | <0.10 |
| Nickel, total as Ni, mg/l | <0.07 |
| Selenium, total as Se, mg/l | <0.010 |
| Zinc, total as Zn, mg/l | 0.027 |

Robert W. Harris
Vice President of Scientific Affairs

RWH/km

Organics
Soil & Sediment

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE VOLATILE FRACTION ANALYZED |
|---|---|---|---|---|
| 1. | AC-1b | 114090 | 01/06/87 | 01/07/87 |

COMPOUND LIST - VOLATILE ORGANICS

SAMPLE IDENTIFIER: AC-1b
COMPUCHEM® SAMPLE NUMBER: 114090

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1V. | CHLOROMETHANE | BDL | 10 |
| 2V. | BROMOMETHANE | BDL | 10 |
| 3V. | VINYL CHLORIDE | BDL | 10 |
| 4V. | CHLOROETHANE | BDL | 10 |
| 5V. | METHYLENE CHLORIDE | 12 B* | 10 |
| 6V. | ACROLEIN | BDL | 100 |
| 7V. | ACRYLONITRILE | BDL | 100 |
| 8V. | 1,1-DICHLOROETHYLENE | BDL | 10 |
| 9V. | 1,1-DICHLOROETHANE | BDL | 10 |
| 10V. | TRANS-1,2-DICHLOROETHYLENE | BDL | 10 |
| 11V. | CHLOROFORM | BDL | 10 |
| 12V. | 1,2-DICHLOROETHANE | BDL | 10 |
| 13V. | 1,1,1-TRICHLOROETHANE | BDL | 10 |
| 14V. | CARBON TETRACHLORIDE | BDL | 10 |
| 15V. | BROMODICHLOROMETHANE | BDL | 10 |
| 16V. | 1,2-DICHLOROPROPANE | BDL | 10 |
| 17V. | TRANS-1,3-DICHLOROPROPENE | BDL | 10 |
| 18V. | TRICHLOROETHYLENE | BDL | 10 |
| 19V. | DIBROMOCHLOROMETHANE | BDL | 10 |
| 20V. | 1,1,2-TRICHLOROETHANE | BDL | 10 |
| 21V. | BENZENE | BDL | 10 |
| 22V. | CIS-1,3-DICHLOROPROPENE | BDL | 10 |
| 23V. | 2-CHLOROETHYL VINYL ETHER | BDL | 10 |
| 24V. | BROMOFORM | BDL | 10 |
| 25V. | TETRACHLOROETHYLENE | BDL | 10 |
| 26V. | 1,1,2,2-TETRACHLOROETHANE | BDL | 10 |
| 27V. | TOLUENE | BDL | 10 |
| 28V. | CHLOROBENZENE | BDL | 10 |
| 29V. | ETHYLBENZENE | BDL | 10 |

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| $D_4$-1,2-Dichloroethane | 114 | (50-160) |
| 4-Bromofluorobenzene | 132 | (50-160) |
| $D_8$-Toluene | 156 | (50-160) |

BDL= BELOW DETECTION LIMIT
*See Quality Assurance Notice #1

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-1b
COMPUCHEM® SAMPLE NUMBER: 114090

### VOLATILE

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | VB870107C18 | ** |
| Blank Spike | 113947 | OK |
| Sample Spike | 113946 | †† |
| BFB* | BF870106B18 | OK |
| Shift Standard | VS870107C18 | OK |

*The tuning calibration compound, Bromofluorobenzene, is used for the volatile instruments.

**See Quality Assurance Notice #1
††See Quality Assurance Notice #2

QUALITY ASSURANCE NOTICE #1

Sample # 114090

Blank I.D.: VB870107C18

Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the Contract Laboratory Program (CLP) Caucus Organics Protocols, we have reported the following compound with the "B" footnote.

| common laboratory artifact | blank concentration | units |
|---|---|---|
| Methylene Chloride | 10 | ug/kg |

The "B" indicates that this analyte was also detected in the associated Method Blank (and/or Instrument Blank). This footnote is only used for the common laboratory solvent, methylene chloride.

When both an Instrument Blank and a Method Blank are prepared, the "B" footnote is applied to associated sample data if a commom artifact is detected in either blank. Compositing Blanks are prepared with samples that require compositing of all as-received sample containers. Since the entire sample is consumed in the process, repreparation and reanalysis of a composited sample is not possible. Therefore, exceptions are made to allowable levels of blank contamination in such instances.

The EPA-CLP protocols permit up to 25 ug/l of methylene chloride in volatile blanks. Our policy is much more stringent for non-CLP requirements. The maximum allowable level for methylene chloride in Instrument Blanks is 5 ug/l (2 ug/l for blanks associated with Lower Detection Limit samples) unless successive blanks indicate a consistent background level of methylene chloride. The concentration of methylene chloride in solid Method Blanks may not exceed 10 ug/kg. Exceptions to this policy are made only when sample Holding Times are in jeopardy of being exceeded.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact in a sample is greater than ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

Robert J. Whitehead
Sr. Quality Assurance Specialist

QUALITY ASSURANCE NOTICE #2
Sample Spike #113946 Original #113945
Blank Spike #113947 Fraction Volatile

Recoveries for the spike compounds were outside acceptance criteria in the above sample spike. A Quality Control blank spike was analyzed with this batch of samples in which all spike recovery criteria were met.

We have attributed the unacceptable recoveries to the matrix of the original sample, since recoveries in the blank spike analyzed with these samples were acceptable. These data are being reported with reference to this qualifier.

data reviewer SAH

date 01/06/87

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE ACID FRACTION ANALYZED | DATE BASE/NEUTRAL FRACTION ANALYZED |
|---|---|---|---|---|---|---|
| 1. | AC-1b | 114086 | 01/06/87 | 01/06/87 | 01/07/87 | 01/08/87 |

COMPOUND LIST -- ACID EXTRACTABLES

SAMPLE IDENTIFIER: AC-1b
COMPUCHEM® SAMPLE NUMBER: 114086

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1A. | PHENOL | BDL | 330 |
| 2A. | 2-CHLOROPHENOL | BDL | 330 |
| 3A. | 2-NITROPHENOL | BDL | 330 |
| 4A. | 2,4-DIMETHYLPHENOL | BDL | 330 |
| 5A. | 2,4-DICHLOROPHENOL | BDL | 330 |
| 6A. | P-CHLORO-M-CRESOL | BDL | 330 |
| 7A. | 2,4,6-TRICHLOROPHENOL | BDL | 330 |
| 8A. | 2,4-DINITROPHENOL | BDL | 1600 |
| 9A. | 4-NITROPHENOL | BDL | 1600 |
| 10A. | 4,6-DINITRO-O-CRESOL | BDL | 1600 |
| 11A. | PENTACHLOROPHENOL | BDL | 1600 |

Surrogate Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| 2-Fluorophenol | 60 | (20-140) |
| $D_5$-Phenol | 69 | (20-140) |
| 2,4,6-Tribromophenol | 70 | (10-140) |

BDL= BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES

SAMPLE IDENTIFIER: AC-1b
COMPUCHEM® SAMPLE NUMBER: 114086

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1B. | N-NITROSODIMETHYLAMINE | BDL | 330 |
| 2B. | BIS (2-CHLOROETHYL) ETHER | BDL | 330 |
| 3B. | 1,3-DICHLOROBENZENE | BDL | 330 |
| 4B. | 1,4-DICHLOROBENZENE | BDL | 330 |
| 5B. | 1,2-DICHLOROBENZENE | BDL | 330 |
| 6B. | BIS (2-CHLOROISOPROPYL) ETHER | BDL | 330 |
| 7B. | N-NITROSODI-N-PROPYLAMINE | BDL | 330 |
| 8B. | HEXACHLOROETHANE | BDL | 330 |
| 9B. | NITROBENZENE | BDL | 330 |
| 10B. | ISOPHORONE | BDL | 330 |
| 11B. | BIS(2-CHLOROETHOXY) METHANE | BDL | 330 |
| 12B. | 1,2,4-TRICHLOROBENZENE | BDL | 330 |
| 13B. | NAPHTHALENE | BDL | 330 |
| 14B. | HEXACHLOROBUTADIENE | BDL | 330 |
| 15B. | HEXACHLOROCYCLOPENTADIENE | BDL | 330 |
| 16B. | 2-CHLORONAPHTHALENE | BDL | 330 |
| 17B. | DIMETHYLPHTHALATE | BDL | 330 |
| 18B. | ACENAPHTHYLENE | BDL | 330 |
| 19B. | 2,6-DINITROTOLUENE | BDL | 330 |
| 20B. | ACENAPHTHENE | BDL | 330 |
| 21B. | 2,4-DINITROTOLUENE | BDL | 330 |
| 22B. | DIETHYLPHTHALATE | BDL | 330 |
| 23B. | 4-CHLOROPHENYL PHENYL ETHER | BDL | 330 |
| 24B. | FLUORENE | BDL | 330 |
| 25B. | DIPHENYLAMINE (N-NITROSO) | BDL | 330 |
| 26B. | 1,2-DIPHENYLHYDRAZINE (AZOBENZENE) | BDL | 330 |
| 27B. | 4-BROMOPHENYL PHENYL ETHER | BDL | 330 |
| 28B. | HEXACHLOROBENZENE | BDL | 330 |

(Continued)

BDL=BELOW DETECTION LIMIT

SAMPLE IDENTIFIER: AC-1b
COMPUCHEM® SAMPLE NUMBER: 114086

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 29B. | PHENANTHRENE | BDL | 330 |
| 30B. | ANTHRACENE | BDL | 330 |
| 31B. | DI-N-BUTYLPHTHALATE | BDL | 330 |
| 32B. | FLUORANTHENE | BDL | 330 |
| 33B. | PYRENE | BDL | 330 |
| 34B. | BENZIDINE | BDL | 1600 |
| 35B. | BUTYLBENZYLPHTHALATE | BDL | 330 |
| 36B. | 3,3'-DICHLOROBENZIDINE | BDL | 660 |
| 37B. | BENZO(A)ANTHRACENE | BDL | 330 |
| 38B. | BIS(2-ETHYLHEXYL)PHTHALATE | BDL | 330 |
| 39B. | CHRYSENE | BDL | 330 |
| 40B. | DI-N-OCTYLPHTHALATE | BDL | 330 |
| 41B. | BENZO(B)FLUORANTHENE | BDL | 330 |
| 42B. | BENZO(K)FLUORANTHENE | BDL | 330 |
| 43B. | BENZO(A)PYRENE | BDL | 330 |
| 44B. | INDENO(1,2,3-C,D)PYRENE | BDL | 330 |
| 45B. | DIBENZO(A,H)ANTHRACENE | BDL | 330 |
| 46B. | BENZO(G,H,I)PERYLENE | BDL | 330 |

Surrogates Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| $D_5$-Nitrobenzene | 66 | (20-140) |
| 2-Fluorobiphenyl | 71 | (20-140) |
| $D_{14}$-Terphenyl | 84 | (20-150) |
| D10-Pyrene* | 87 | * |

BDL=BELOW DETECTION LIMIT
*Advisory Surrogate; therefore no control range.

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-1b
COMPUCHEM® SAMPLE NUMBER: 114086

### ACID

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114142 | OK |
| Sample Spike | 112994 | OK |
| DFTPP* | DF870107C20 | OK |
| Shift Standard | AS870107C20 | OK |

### BASE/NEUTRAL

| | | |
|---|---|---|
| Blank | 114142 | OK |
| Sample Spike | 112994 | OK |
| DFTPP* | DF870108C22 | OK |
| Shift Standard | BT870108C22 | OK |

*The tuning calibration compound, Decafluorotriphenylphosphine, is used for the acid and base/neutral instruments.

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P.O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE PESTICIDES/PCBs FRACTION ANALYZED |
|---|---|---|---|---|---|
| 1. | AC-1b | 114087 | 01/06/87 | 01/07/87 | 01/07/87<br>01/12/87* |

*Sample extract re-analyzed after florisil column clean-up.

COMPOUND LIST -- PESTICIDES/PCBs

SAMPLE IDENTIFIER: AC-1b
COMPUCHEM® SAMPLE NUMBER: 114087

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1P. | ALDRIN | BDL | 2.0 |
| 2P. | ALPHA-BHC | BDL | 2.0 |
| 3P. | BETA-BHC | BDL | 2.0 |
| 4P. | GAMMA-BHC | BDL | 2.0 |
| 5P. | DELTA-BHC | BDL | 2.0 |
| 6P. | CHLORDANE (TECHNICAL) | BDL | 10 |
| 7P. | 4,4'-DDT | BDL | 2.0 |
| 8P. | 4,4'-DDE | BDL | 2.0 |
| 9P. | 4,4'-DDD | BDL | 2.0 |
| 10P. | DIELDRIN | BDL | 2.0 |
| 11P. | ALPHA-ENDOSULFAN | BDL | 2.0 |
| 12P. | BETA-ENDOSULFAN | BDL | 2.0 |
| 13P. | ENDOSULFAN SULFATE | BDL | 2.0 |
| 14P. | ENDRIN | BDL | 2.0 |
| 15P. | ENDRIN ALDEHYDE | BDL | 2.0 |
| 16P. | HEPTACHLOR | BDL | 2.0 |
| 17P. | HEPTACHLOR EPOXIDE | BDL | 2.0 |
| 18P. | PCB-1242 | BDL | 20 |
| 19P. | PCB-1254 | BDL | 20 |
| 20P. | PCB-1221 | BDL | 20 |
| 21P. | PCB-1232 | BDL | 20 |
| 22P. | PCB-1248 | BDL | 20 |
| 23P. | PCB-1260 | BDL | 20 |
| 24P. | PCB-1016 | BDL | 20 |
| 25P. | TOXAPHENE | BDL | 20 |

Surrogate Recovery - Introduced at the beginning of the extraction, the surrogate standard is a select compound that analytically mimics the response of certain analytes. A known concentration of this surrogate is added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | % Recovery | Control Range % |
|---|---|---|
| Dibutylchlorendate | 57 | 20-150* |

*Advisory surrogate; with the exception of dilutions recovery below 10% requires action step (re-extraction and re-analysis).

BDL=BELOW DETECTION LIMIT

# QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-1b
COMPUCHEM® SAMPLE NUMBER: 114087

## PESTICIDES

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114146 | OK |
| Duplicate | 114089 | OK |
| Sample Spike | 114088 | OK |
| Shift Standards | | |
| Pesticide/PCBs Standard | | OK |

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE VOLATILE FRACTION ANALYZED |
|---|---|---|---|---|
| 1. | AC-2 | 114094 | 01/06/87 | 01/07/87 |

COMPOUND LIST - VOLATILE ORGANICS

SAMPLE IDENTIFIER: AC-2
COMPUCHEM® SAMPLE NUMBER: 114094

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1V. | CHLOROMETHANE | BDL | 10 |
| 2V. | BROMOMETHANE | BDL | 10 |
| 3V. | VINYL CHLORIDE | BDL | 10 |
| 4V. | CHLOROETHANE | BDL | 10 |
| 5V. | METHYLENE CHLORIDE | 10 B* | 10 |
| 6V. | ACROLEIN | BDL | 100 |
| 7V. | ACRYLONITRILE | BDL | 100 |
| 8V. | 1,1-DICHLOROETHYLENE | BDL | 10 |
| 9V. | 1,1-DICHLOROETHANE | BDL | 10 |
| 10V. | TRANS-1,2-DICHLOROETHYLENE | BDL | 10 |
| 11V. | CHLOROFORM | BDL | 10 |
| 12V. | 1,2-DICHLOROETHANE | BDL | 10 |
| 13V. | 1,1,1-TRICHLOROETHANE | BDL | 10 |
| 14V. | CARBON TETRACHLORIDE | BDL | 10 |
| 15V. | BROMODICHLOROMETHANE | BDL | 10 |
| 16V. | 1,2-DICHLOROPROPANE | BDL | 10 |
| 17V. | TRANS-1,3-DICHLOROPROPENE | BDL | 10 |
| 18V. | TRICHLOROETHYLENE | BDL | 10 |
| 19V. | DIBROMOCHLOROMETHANE | BDL | 10 |
| 20V. | 1,1,2-TRICHLOROETHANE | BDL | 10 |
| 21V. | BENZENE | BDL | 10 |
| 22V. | CIS-1,3-DICHLOROPROPENE | BDL | 10 |
| 23V. | 2-CHLOROETHYL VINYL ETHER | BDL | 10 |
| 24V. | BROMOFORM | BDL | 10 |
| 25V. | TETRACHLOROETHYLENE | BDL | 10 |
| 26V. | 1,1,2,2-TETRACHLOROETHANE | BDL | 10 |
| 27V. | TOLUENE | BDL | 10 |
| 28V. | CHLOROBENZENE | BDL | 10 |
| 29V. | ETHYLBENZENE | BDL | 10 |

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| $D_4$-1,2-Dichloroethane | 120 | (50-160) |
| 4-Bromofluorobenzene | 148 | (50-160) |
| $D_8$-Toluene | 147 | (50-160) |

BDL= BELOW DETECTION LIMIT
*See Quality Assurance Notice #1

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-2
COMPUCHEM® SAMPLE NUMBER: 114094

### VOLATILE

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | VB870107C18 | ** |
| Blank Spike | 113947 | OK |
| Sample Spike | 113946 | †† |
| BFB* | BF870106B18 | OK |
| Shift Standard | VS870107C18 | OK |

*The tuning calibration compound, Bromofluorobenzene, is used for the volatile instruments.

**See Quality Assurance Notice #1
††See Quality Assurance Notice #2

QUALITY ASSURANCE NOTICE #1

Sample # 114094

Blank I.D.: VB870107C18

Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the Contract Laboratory Program (CLP) Caucus Organics Protocols, we have reported the following compound with the "B" footnote.

| common laboratory artifact | blank concentration | units |
|---|---|---|
| Methylene Chloride | 10 | ug/kg |

The "B" indicates that this analyte was also detected in the associated Method Blank (and/or Instrument Blank). This footnote is only used for the common laboratory solvent, methylene chloride.

When both an Instrument Blank and a Method Blank are prepared, the "B" footnote is applied to associated sample data if a commom artifact is detected in either blank. Compositing Blanks are prepared with samples that require compositing of all as-received sample containers. Since the entire sample is consumed in the process, repreparation and reanalysis of a composited sample is not possible. Therefore, exceptions are made to allowable levels of blank contamination in such instances.

The EPA-CLP protocols permit up to 25 ug/l of methylene chloride in volatile blanks. Our policy is much more stringent for non-CLP requirements. The maximum allowable level for methylene chloride in Instrument Blanks is 5 ug/l (2 ug/l for blanks associated with Lower Detection Limit samples) unless successive blanks indicate a consistent background level of methylene chloride. The concentration of methylene chloride in solid Method Blanks may not exceed 10 ug/kg. Exceptions to this policy are made only when sample Holding Times are in jeopardy of being exceeded.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact in a sample is greater than ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

Robert J. Whitehead
Sr. Quality Assurance Specialist

QUALITY ASSURANCE NOTICE #2
Sample Spike #113946 Original #113945
Blank Spike #113947 Fraction Volatile

Recoveries for the spike compounds were outside acceptance criteria in the above sample spike. A Quality Control blank spike was analyzed with this batch of samples in which all spike recovery criteria were met.

We have attributed the unacceptable recoveries to the matrix of the original sample, since recoveries in the blank spike analyzed with these samples were acceptable. These data are being reported with reference to this qualifier.

data reviewer SAH

date 01/06/87

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE ACID FRACTION ANALYZED | DATE BASE/NEUTRAL FRACTION ANALYZED |
|---|---|---|---|---|---|---|
| 1. | AC-2 | 114092 | 01/06/87 | 01/06/87 | 01/07/87 | 01/08/87 |

COMPOUND LIST -- ACID EXTRACTABLES

SAMPLE IDENTIFIER: AC-2
COMPUCHEM® SAMPLE NUMBER: 114092

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1A. | PHENOL | BDL | 330 |
| 2A. | 2-CHLOROPHENOL | BDL | 330 |
| 3A. | 2-NITROPHENOL | BDL | 330 |
| 4A. | 2,4-DIMETHYLPHENOL | BDL | 330 |
| 5A. | 2,4-DICHLOROPHENOL | BDL | 330 |
| 6A. | P-CHLORO-M-CRESOL | BDL | 330 |
| 7A. | 2,4,6-TRICHLOROPHENOL | BDL | 330 |
| 8A. | 2,4-DINITROPHENOL | BDL | 1600 |
| 9A. | 4-NITROPHENOL | BDL | 1600 |
| 10A. | 4,6-DINITRO-O-CRESOL | BDL | 1600 |
| 11A. | PENTACHLOROPHENOL | BDL | 1600 |

Surrogate Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| 2-Fluorophenol | 57 | (20-140) |
| $D_5$-Phenol | 70 | (20-140) |
| 2,4,6-Tribromophenol | 72 | (10-140) |

BDL= BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES

SAMPLE IDENTIFIER: AC-2
COMPUCHEM® SAMPLE NUMBER: 114092

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1B. | N-NITROSODIMETHYLAMINE | BDL | 330 |
| 2B. | BIS (2-CHLOROETHYL) ETHER | BDL | 330 |
| 3B. | 1,3-DICHLOROBENZENE | BDL | 330 |
| 4B. | 1,4-DICHLOROBENZENE | BDL | 330 |
| 5B. | 1,2-DICHLOROBENZENE | BDL | 330 |
| 6B. | BIS (2-CHLOROISOPROPYL) ETHER | BDL | 330 |
| 7B. | N-NITROSODI-N-PROPYLAMINE | BDL | 330 |
| 8B. | HEXACHLOROETHANE | BDL | 330 |
| 9B. | NITROBENZENE | BDL | 330 |
| 10B. | ISOPHORONE | BDL | 330 |
| 11B. | BIS(2-CHLOROETHOXY) METHANE | BDL | 330 |
| 12B. | 1,2,4-TRICHLOROBENZENE | BDL | 330 |
| 13B. | NAPHTHALENE | BDL | 330 |
| 14B. | HEXACHLOROBUTADIENE | BDL | 330 |
| 15B. | HEXACHLOROCYCLOPENTADIENE | BDL | 330 |
| 16B. | 2-CHLORONAPHTHALENE | BDL | 330 |
| 17B. | DIMETHYLPHTHALATE | BDL | 330 |
| 18B. | ACENAPHTHYLENE | BDL | 330 |
| 19B. | 2,6-DINITROTOLUENE | BDL | 330 |
| 20B. | ACENAPHTHENE | BDL | 330 |
| 21B. | 2,4-DINITROTOLUENE | BDL | 330 |
| 22B. | DIETHYLPHTHALATE | BDL | 330 |
| 23B. | 4-CHLOROPHENYL PHENYL ETHER | BDL | 330 |
| 24B. | FLUORENE | BDL | 330 |
| 25B. | DIPHENYLAMINE (N-NITROSO) | BDL | 330 |
| 26B. | 1,2-DIPHENYLHYDRAZINE (AZOBENZENE) | BDL | 330 |
| 27B. | 4-BROMOPHENYL PHENYL ETHER | BDL | 330 |
| 28B. | HEXACHLOROBENZENE | BDL | 330 |

(Continued)

BDL=BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES (Page Two)

SAMPLE IDENTIFIER: AC-2
COMPUCHEM® SAMPLE NUMBER: 114092

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 29B. | PHENANTHRENE | BDL | 330 |
| 30B. | ANTHRACENE | BDL | 330 |
| 31B. | DI-N-BUTYLPHTHALATE | BDL | 330 |
| 32B. | FLUORANTHENE | 290 J | 330 |
| 33B. | PYRENE | 400 | 330 |
| 34B. | BENZIDINE | BDL | 1600 |
| 35B. | BUTYLBENZYLPHTHALATE | BDL | 330 |
| 36B. | 3,3'-DICHLOROBENZIDINE | BDL | 660 |
| 37B. | BENZO(A)ANTHRACENE | 210 J | 330 |
| 38B. | BIS(2-ETHYLHEXYL)PHTHALATE | BDL | 330 |
| 39B. | CHRYSENE | 320 J | 330 |
| 40B. | DI-N-OCTYLPHTHALATE | BDL | 330 |
| 41B. | BENZO(B)FLUORANTHENE | 850(1) | 330 |
| 42B. | BENZO(K)FLUORANTHENE | 850(1) | 330 |
| 43B. | BENZO(A)PYRENE | 260 J | 330 |
| 44B. | INDENO(1,2,3-C,D)PYRENE | 190 J | 330 |
| 45B. | DIBENZO(A,H)ANTHRACENE | BDL | 330 |
| 46B. | BENZO(G,H,I)PERYLENE | 210 J | 330 |

Surrogates Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| $D_5$-Nitrobenzene | 56 | (20-140) |
| 2-Fluorobiphenyl | 63 | (20-140) |
| $D_{14}$-Terphenyl | 76 | (20-150) |
| D10-Pyrene* | 77 | * |

BDL=BELOW DETECTION LIMIT
*Advisory Surrogate; therefore no control range.
J=Estimated concentration; values are between the detection limit and one-half of that limit.
(1)Indistinguishable Isomers

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-2
COMPUCHEM® SAMPLE NUMBER: 114092

### ACID

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114142 | OK |
| Sample Spike | 112994 | OK |
| DFTPP* | DF870107C20 | OK |
| Shift Standard | AS870107C20 | OK |

### BASE/NEUTRAL

| | | |
|---|---|---|
| Blank | 114142 | OK |
| Sample Spike | 112994 | OK |
| DFTPP* | DF870108C22 | OK |
| Shift Standard | BT870108C22 | OK |

*The tuning calibration compound, Decafluorotriphenylphosphine, is used for the acid and base/neutral instruments.

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P.O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE PESTICIDES/PCBs FRACTION ANALYZED |
|---|---|---|---|---|---|
| 1. | AC-2 | 114093 | 01/06/87 | 01/07/87 | 01/07/87<br>01/12/87*<br>01/13/87† |

*Sample extract re-analyzed after florisil column clean-up.

†Second column confirmation analysis which serves to verify the presence or absence of Pesticides/PCB's.

COMPOUND LIST -- PESTICIDES/PCBs

SAMPLE IDENTIFIER: AC-2
COMPUCHEM® SAMPLE NUMBER: 114093

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1P. | ALDRIN | BDL | 2.0 |
| 2P. | ALPHA-BHC | BDL | 2.0 |
| 3P. | BETA-BHC | BDL | 2.0 |
| 4P. | GAMMA-BHC | BDL | 2.0 |
| 5P. | DELTA-BHC | BDL | 2.0 |
| 6P. | CHLORDANE (TECHNICAL) | BDL | 10 |
| 7P. | 4,4'-DDT | BDL | 2.0 |
| 8P. | 4,4'-DDE | BDL | 2.0 |
| 9P. | 4,4'-DDD | BDL | 2.0 |
| 10P. | DIELDRIN | BDL | 2.0 |
| 11P. | ALPHA-ENDOSULFAN | BDL | 2.0 |
| 12P. | BETA-ENDOSULFAN | BDL | 2.0 |
| 13P. | ENDOSULFAN SULFATE | BDL | 2.0 |
| 14P. | ENDRIN | BDL | 2.0 |
| 15P. | ENDRIN ALDEHYDE | BDL | 2.0 |
| 16P. | HEPTACHLOR | BDL | 2.0 |
| 17P. | HEPTACHLOR EPOXIDE | BDL | 2.0 |
| 18P. | PCB-1242 | BDL | 20 |
| 19P. | PCB-1254 | BDL | 20 |
| 20P. | PCB-1221 | BDL | 20 |
| 21P. | PCB-1232 | BDL | 20 |
| 22P. | PCB-1248 | BDL | 20 |
| 23P. | PCB-1260 | BDL | 20 |
| 24P. | PCB-1016 | BDL | 20 |
| 25P. | TOXAPHENE | BDL | 20 |

Surrogate Recovery - Introduced at the beginning of the extraction, the surrogate standard is a select compound that analytically mimics the response of certain analytes. A known concentration of this surrogate is added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | % Recovery | Control Range % |
|---|---|---|
| Dibutylchlorendate | 69 | 20-150* |

*Advisory surrogate; with the exception of dilutions recovery below 10% requires action step (re-extraction and re-analysis).

BDL=BELOW DETECTION LIMIT

# QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-2
COMPUCHEM® SAMPLE NUMBER: 114093

## PESTICIDES

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114146 | OK |
| Duplicate | 114089 | OK |
| Sample Spike | 114088 | OK |
| Shift Standards | | |
| Pesticide/PCBs Standard | | OK |

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE VOLATILE FRACTION ANALYZED |
|---|---|---|---|---|
| 1. | AC-3 | 114098 | 01/06/87 | 01/07/87 |

COMPOUND LIST - VOLATILE ORGANICS

SAMPLE IDENTIFIER: AC-3
COMPUCHEM® SAMPLE NUMBER: 114098

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1V. | CHLOROMETHANE | BDL | 10 |
| 2V. | BROMOMETHANE | BDL | 10 |
| 3V. | VINYL CHLORIDE | BDL | 10 |
| 4V. | CHLOROETHANE | BDL | 10 |
| 5V. | METHYLENE CHLORIDE | 13 B* | 10 |
| 6V. | ACROLEIN | BDL | 100 |
| 7V. | ACRYLONITRILE | BDL | 100 |
| 8V. | 1,1-DICHLOROETHYLENE | BDL | 10 |
| 9V. | 1,1-DICHLOROETHANE | BDL | 10 |
| 10V. | TRANS-1,2-DICHLOROETHYLENE | BDL | 10 |
| 11V. | CHLOROFORM | BDL | 10 |
| 12V. | 1,2-DICHLOROETHANE | BDL | 10 |
| 13V. | 1,1,1-TRICHLOROETHANE | BDL | 10 |
| 14V. | CARBON TETRACHLORIDE | BDL | 10 |
| 15V. | BROMODICHLOROMETHANE | BDL | 10 |
| 16V. | 1,2-DICHLOROPROPANE | BDL | 10 |
| 17V. | TRANS-1,3-DICHLOROPROPENE | BDL | 10 |
| 18V. | TRICHLOROETHYLENE | BDL | 10 |
| 19V. | DIBROMOCHLOROMETHANE | BDL | 10 |
| 20V. | 1,1,2-TRICHLOROETHANE | BDL | 10 |
| 21V. | BENZENE | BDL | 10 |
| 22V. | CIS-1,3-DICHLOROPROPENE | BDL | 10 |
| 23V. | 2-CHLOROETHYL VINYL ETHER | BDL | 10 |
| 24V. | BROMOFORM | BDL | 10 |
| 25V. | TETRACHLOROETHYLENE | BDL | 10 |
| 26V. | 1,1,2,2-TETRACHLOROETHANE | BDL | 10 |
| 27V. | TOLUENE | BDL | 10 |
| 28V. | CHLOROBENZENE | BDL | 10 |
| 29V. | ETHYLBENZENE | BDL | 10 |

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| $D_4$-1,2-Dichloroethane | 91 | (50-160) |
| 4-Bromofluorobenzene | 95 | (50-160) |
| $D_8$-Toluene | 110 | (50-160) |

BDL= BELOW DETECTION LIMIT
*See Quality Assurance Notice #1

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-3
COMPUCHEM® SAMPLE NUMBER: 114098

### VOLATILE

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | VB870107C18 | ** |
| Blank Spike | 113947 | OK |
| Sample Spike | 113946 | †† |
| BFB* | BF870106B18 | OK |
| Shift Standard | VS870107C18 | OK |

*The tuning calibration compound, Bromofluorobenzene, is used for the volatile instruments.

**See Quality Assurance Notice #1
††See Quality Assurance Notice #2

QUALITY ASSURANCE NOTICE #1

Sample # 114098

Blank I.D.: VB870107C18

Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the Contract Laboratory Program (CLP) Caucus Organics Protocols, we have reported the following compound with the "B" footnote.

| common laboratory artifact | blank concentration | units |
|---|---|---|
| Methylene Chloride | 10 | ug/kg |

The "B" indicates that this analyte was also detected in the associated Method Blank (and/or Instrument Blank). This footnote is only used for the common laboratory solvent, methylene chloride.

When both an Instrument Blank and a Method Blank are prepared, the "B" footnote is applied to associated sample data if a commom artifact is detected in either blank. Compositing Blanks are prepared with samples that require compositing of all as-received sample containers. Since the entire sample is consumed in the process, repreparation and reanalysis of a composited sample is not possible. Therefore, exceptions are made to allowable levels of blank contamination in such instances.

The EPA-CLP protocols permit up to 25 ug/l of methylene chloride in volatile blanks. Our policy is much more stringent for non-CLP requirements. The maximum allowable level for methylene chloride in Instrument Blanks is 5 ug/l (2 ug/l for blanks associated with Lower Detection Limit samples) unless successive blanks indicate a consistent background level of methylene chloride. The concentration of methylene chloride in solid Method Blanks may not exceed 10 ug/kg. Exceptions to this policy are made only when sample Holding Times are in jeopardy of being exceeded.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact in a sample is greater than ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

Robert J. Whitehead
Sr. Quality Assurance Specialist

QUALITY ASSURANCE NOTICE #2
Sample Spike #113946 Original #113945
Blank Spike #113947 Fraction Volatile

Recoveries for the spike compounds were outside acceptance criteria in the above sample spike. A Quality Control blank spike was analyzed with this batch of samples in which all spike recovery criteria were met.

We have attributed the unacceptable recoveries to the matrix of the original sample, since recoveries in the blank spike analyzed with these samples were acceptable. These data are being reported with reference to this qualifier.

data reviewer SAH

date 01/06/87

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE ACID FRACTION ANALYZED | DATE BASE/NEUTRAL FRACTION ANALYZED |
|---|---|---|---|---|---|---|
| 1. | AC-3 | 114095 | 01/06/87 | 01/06/87 | 01/07/87 | 01/08/87 |

COMPOUND LIST -- ACID EXTRACTABLES

SAMPLE IDENTIFIER: AC-3
COMPUCHEM® SAMPLE NUMBER: 114095

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1A. | PHENOL | BDL | 330 |
| 2A. | 2-CHLOROPHENOL | BDL | 330 |
| 3A. | 2-NITROPHENOL | BDL | 330 |
| 4A. | 2,4-DIMETHYLPHENOL | BDL | 330 |
| 5A. | 2,4-DICHLOROPHENOL | BDL | 330 |
| 6A. | P-CHLORO-M-CRESOL | BDL | 330 |
| 7A. | 2,4,6-TRICHLOROPHENOL | BDL | 330 |
| 8A. | 2,4-DINITROPHENOL | BDL | 1600 |
| 9A. | 4-NITROPHENOL | BDL | 1600 |
| 10A. | 4,6-DINITRO-O-CRESOL | BDL | 1600 |
| 11A. | PENTACHLOROPHENOL | BDL | 1600 |

Surrogate Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| 2-Fluorophenol | 32 | (20-140) |
| $D_5$-Phenol | 46 | (20-140) |
| 2,4,6-Tribromophenol | 39 | (10-140) |

BDL= BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES

SAMPLE IDENTIFIER: AC-3
COMPUCHEM® SAMPLE NUMBER: 114095

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1B. | N-NITROSODIMETHYLAMINE | BDL | 330 |
| 2B. | BIS (2-CHLOROETHYL) ETHER | BDL | 330 |
| 3B. | 1,3-DICHLOROBENZENE | BDL | 330 |
| 4B. | 1,4-DICHLOROBENZENE | BDL | 330 |
| 5B. | 1,2-DICHLOROBENZENE | BDL | 330 |
| 6B. | BIS (2-CHLOROISOPROPYL) ETHER | BDL | 330 |
| 7B. | N-NITROSODI-N-PROPYLAMINE | BDL | 330 |
| 8B. | HEXACHLOROETHANE | BDL | 330 |
| 9B. | NITROBENZENE | BDL | 330 |
| 10B. | ISOPHORONE | BDL | 330 |
| 11B. | BIS(2-CHLOROETHOXY) METHANE | BDL | 330 |
| 12B. | 1,2,4-TRICHLOROBENZENE | BDL | 330 |
| 13B. | NAPHTHALENE | BDL | 330 |
| 14B. | HEXACHLOROBUTADIENE | BDL | 330 |
| 15B. | HEXACHLOROCYCLOPENTADIENE | BDL | 330 |
| 16B. | 2-CHLORONAPHTHALENE | BDL | 330 |
| 17B. | DIMETHYLPHTHALATE | BDL | 330 |
| 18B. | ACENAPHTHYLENE | BDL | 330 |
| 19B. | 2,6-DINITROTOLUENE | BDL | 330 |
| 20B. | ACENAPHTHENE | BDL | 330 |
| 21B. | 2,4-DINITROTOLUENE | BDL | 330 |
| 22B. | DIETHYLPHTHALATE | BDL | 330 |
| 23B. | 4-CHLOROPHENYL PHENYL ETHER | BDL | 330 |
| 24B. | FLUORENE | BDL | 330 |
| 25B. | DIPHENYLAMINE (N-NITROSO) | BDL | 330 |
| 26B. | 1,2-DIPHENYLHYDRAZINE (AZOBENZENE) | BDL | 330 |
| 27B. | 4-BROMOPHENYL PHENYL ETHER | BDL | 330 |
| 28B. | HEXACHLOROBENZENE | BDL | 330 |

(Continued)

BDL=BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES (Page Two)

SAMPLE IDENTIFIER: AC-3
COMPUCHEM® SAMPLE NUMBER: 114095

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 29B. | PHENANTHRENE | BDL | 330 |
| 30B. | ANTHRACENE | BDL | 330 |
| 31B. | DI-N-BUTYLPHTHALATE | BDL | 330 |
| 32B. | FLUORANTHENE | BDL | 330 |
| 33B. | PYRENE | BDL | 330 |
| 34B. | BENZIDINE | BDL | 1600 |
| 35B. | BUTYLBENZYLPHTHALATE | BDL | 330 |
| 36B. | 3,3'-DICHLOROBENZIDINE | BDL | 660 |
| 37B. | BENZO(A)ANTHRACENE | BDL | 330 |
| 38B. | BIS(2-ETHYLHEXYL)PHTHALATE | BDL | 330 |
| 39B. | CHRYSENE | BDL | 330 |
| 40B. | DI-N-OCTYLPHTHALATE | BDL | 330 |
| 41B. | BENZO(B)FLUORANTHENE | BDL | 330 |
| 42B. | BENZO(K)FLUORANTHENE | BDL | 330 |
| 43B. | BENZO(A)PYRENE | BDL | 330 |
| 44B. | INDENO(1,2,3-C,D)PYRENE | BDL | 330 |
| 45B. | DIBENZO(A,H)ANTHRACENE | BDL | 330 |
| 46B. | BENZO(G,H,I)PERYLENE | BDL | 330 |

Surrogates Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| $D_5$-Nitrobenzene | 62 | (20-140) |
| 2-Fluorobiphenyl | 70 | (20-140) |
| $D_{14}$-Terphenyl | 76 | (20-150) |
| D10-Pyrene* | 76 | * |

BDL=BELOW DETECTION LIMIT
*Advisory Surrogate; therefore no control range.

# QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-3
COMPUCHEM® SAMPLE NUMBER: 114095

## ACID

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114142 | OK |
| Sample Spike | 112994 | OK |
| DFTPP* | DF870107C20 | OK |
| Shift Standard | AS870107C20 | OK |

## BASE/NEUTRAL

| | | |
|---|---|---|
| Blank | 114142 | OK |
| Sample Spike | 112994 | OK |
| DFTPP* | DF870108C22 | OK |
| Shift Standard | BT870108C22 | OK |

*The tuning calibration compound, Decafluorotriphenylphosphine, is used for the acid and base/neutral instruments.

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P.O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE PESTICIDES/PCBs FRACTION ANALYZED |
|---|---|---|---|---|---|
| 1. | AC-3 | 114097 | 01/06/87 | 01/07/87 | 01/07/87<br>01/12/87*<br>01/13/87† |

*Sample extract re-analyzed after florisil column clean-up.

†Second column confirmation analysis which serves to verify the presence or absence of Pesticides/PCB's.

COMPOUND LIST -- PESTICIDES/PCBs

SAMPLE IDENTIFIER: AC-3
COMPUCHEM® SAMPLE NUMBER: 114097

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1P. | ALDRIN | BDL | 2.0 |
| 2P. | ALPHA-BHC | BDL | 2.0 |
| 3P. | BETA-BHC | BDL | 2.0 |
| 4P. | GAMMA-BHC | BDL | 2.0 |
| 5P. | DELTA-BHC | BDL | 2.0 |
| 6P. | CHLORDANE (TECHNICAL) | BDL | 10 |
| 7P. | 4,4'-DDT | BDL | 2.0 |
| 8P. | 4,4'-DDE | BDL | 2.0 |
| 9P. | 4,4'-DDD | BDL | 2.0 |
| 10P. | DIELDRIN | BDL | 2.0 |
| 11P. | ALPHA-ENDOSULFAN | BDL | 2.0 |
| 12P. | BETA-ENDOSULFAN | BDL | 2.0 |
| 13P. | ENDOSULFAN SULFATE | BDL | 2.0 |
| 14P. | ENDRIN | BDL | 2.0 |
| 15P. | ENDRIN ALDEHYDE | BDL | 2.0 |
| 16P. | HEPTACHLOR | BDL | 2.0 |
| 17P. | HEPTACHLOR EPOXIDE | BDL | 2.0 |
| 18P. | PCB-1242 | BDL | 20 |
| 19P. | PCB-1254 | BDL | 20 |
| 20P. | PCB-1221 | BDL | 20 |
| 21P. | PCB-1232 | BDL | 20 |
| 22P. | PCB-1248 | BDL | 20 |
| 23P. | PCB-1260 | BDL | 20 |
| 24P. | PCB-1016 | BDL | 20 |
| 25P. | TOXAPHENE | BDL | 20 |

Surrogate Recovery - Introduced at the beginning of the extraction, the surrogate standard is a select compound that analytically mimics the response of certain analytes. A known concentration of this surrogate is added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | % Recovery | Control Range % |
|---|---|---|
| Dibutylchlorendate | 131 | 20-150* |

*Advisory surrogate; with the exception of dilutions recovery below 10% requires action step (re-extraction and re-analysis).

BDL=BELOW DETECTION LIMIT

# QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-3
COMPUCHEM® SAMPLE NUMBER: 114097

## PESTICIDES

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114146 | OK |
| Duplicate | 114089 | OK |
| Sample Spike | 114088 | OK |
| Shift Standards | | |
| Pesticide/PCBs Standard | | OK |

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE VOLATILE FRACTION ANALYZED |
|---|---|---|---|---|
| 1. | AC-4 | 114101 | 01/06/87 | 01/07/87 |

COMPOUND LIST - VOLATILE ORGANICS

SAMPLE IDENTIFIER: AC-4
COMPUCHEM® SAMPLE NUMBER: 114101

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1V. | CHLOROMETHANE | BDL | 10 |
| 2V. | BROMOMETHANE | BDL | 10 |
| 3V. | VINYL CHLORIDE | BDL | 10 |
| 4V. | CHLOROETHANE | BDL | 10 |
| 5V. | METHYLENE CHLORIDE | 14 B* | 10 |
| 6V. | ACROLEIN | BDL | 100 |
| 7V. | ACRYLONITRILE | BDL | 100 |
| 8V. | 1,1-DICHLOROETHYLENE | BDL | 10 |
| 9V. | 1,1-DICHLOROETHANE | BDL | 10 |
| 10V. | TRANS-1,2-DICHLOROETHYLENE | BDL | 10 |
| 11V. | CHLOROFORM | BDL | 10 |
| 12V. | 1,2-DICHLOROETHANE | BDL | 10 |
| 13V. | 1,1,1-TRICHLOROETHANE | BDL | 10 |
| 14V. | CARBON TETRACHLORIDE | BDL | 10 |
| 15V. | BROMODICHLOROMETHANE | BDL | 10 |
| 16V. | 1,2-DICHLOROPROPANE | BDL | 10 |
| 17V. | TRANS-1,3-DICHLOROPROPENE | BDL | 10 |
| 18V. | TRICHLOROETHYLENE | BDL | 10 |
| 19V. | DIBROMOCHLOROMETHANE | BDL | 10 |
| 20V. | 1,1,2-TRICHLOROETHANE | BDL | 10 |
| 21V. | BENZENE | BDL | 10 |
| 22V. | CIS-1,3-DICHLOROPROPENE | BDL | 10 |
| 23V. | 2-CHLOROETHYL VINYL ETHER | BDL | 10 |
| 24V. | BROMOFORM | BDL | 10 |
| 25V. | TETRACHLOROETHYLENE | BDL | 10 |
| 26V. | 1,1,2,2-TETRACHLOROETHANE | BDL | 10 |
| 27V. | TOLUENE | BDL | 10 |
| 28V. | CHLOROBENZENE | BDL | 10 |
| 29V. | ETHYLBENZENE | BDL | 10 |

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| $D_4$-1,2-Dichloroethane | 114 | (50-160) |
| 4-Bromofluorobenzene | 135 | (50-160) |
| $D_8$-Toluene | 153 | (50-160) |

BDL= BELOW DETECTION LIMIT
*See Quality Assurance Notice #1

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-4
COMPUCHEM® SAMPLE NUMBER: 114101

### VOLATILE

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | VB870107C18 | ** |
| Blank Spike | 113947 | OK |
| Sample Spike | 113946 | †† |
| BFB* | BF870106B18 | OK |
| Shift Standard | VS870107C18 | OK |

*The tuning calibration compound, Bromofluorobenzene, is used for the volatile instruments.

**See Quality Assurance Notice #1
††See Quality Assurance Notice #2

QUALITY ASSURANCE NOTICE #1

Sample # 114101

Blank I.D.: VB870107C18

Following the conventions established by the EPA for qualifying common laboratory artifacts in samples analyzed under the Contract Laboratory Program (CLP) Caucus Organics Protocols, we have reported the following compound with the "B" footnote.

| common laboratory artifact | blank concentration | units |
|---|---|---|
| Methylene Chloride | 10 | ug/kg |

The "B" indicates that this analyte was also detected in the associated Method Blank (and/or Instrument Blank). This footnote is only used for the common laboratory solvent, methylene chloride.

When both an Instrument Blank and a Method Blank are prepared, the "B" footnote is applied to associated sample data if a commom artifact is detected in either blank. Compositing Blanks are prepared with samples that require compositing of all as-received sample containers. Since the entire sample is consumed in the process, repreparation and reanalysis of a composited sample is not possible. Therefore, exceptions are made to allowable levels of blank contamination in such instances.

The EPA-CLP protocols permit up to 25 ug/l of methylene chloride in volatile blanks. Our policy is much more stringent for non-CLP requirements. The maximum allowable level for methylene chloride in Instrument Blanks is 5 ug/l (2 ug/l for blanks associated with Lower Detection Limit samples) unless successive blanks indicate a consistent background level of methylene chloride. The concentration of methylene chloride in solid Method Blanks may not exceed 10 ug/kg. Exceptions to this policy are made only when sample Holding Times are in jeopardy of being exceeded.

Data Interpretation: General EPA Guidelines

In evaluating data usability, the EPA uses certain general guidelines for assessing the presence of common laboratory artifacts in samples. If the concentration of an artifact in a sample is greater than ten times that in the blank, the blank contribution is considered negligible. If blank and sample concentrations are comparable (sample level not greater than twice the blank level), the presence of that compound in the sample is considered suspect.

Robert J. Whitehead
Sr. Quality Assurance Specialist

QUALITY ASSURANCE NOTICE #2
Sample Spike #113946 Original #113945
Blank Spike #113947 Fraction Volatile

Recoveries for the spike compounds were outside acceptance criteria in the above sample spike. A Quality Control blank spike was analyzed with this batch of samples in which all spike recovery criteria were met.

We have attributed the unacceptable recoveries to the matrix of the original sample, since recoveries in the blank spike analyzed with these samples were acceptable. These data are being reported with reference to this qualifier.

data reviewer SAH

date 01/06/87

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE ACID FRACTION ANALYZED | DATE BASE/NEUTRAL FRACTION ANALYZED |
|---|---|---|---|---|---|---|
| 1. | AC-4 | 114099 | 01/06/87 | 01/06/87 | 01/07/87 | 01/08/87 |

COMPOUND LIST -- ACID EXTRACTABLES

SAMPLE IDENTIFIER: AC-4
COMPUCHEM® SAMPLE NUMBER: 114099

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1A. | PHENOL | BDL | 330 |
| 2A. | 2-CHLOROPHENOL | BDL | 330 |
| 3A. | 2-NITROPHENOL | BDL | 330 |
| 4A. | 2,4-DIMETHYLPHENOL | BDL | 330 |
| 5A. | 2,4-DICHLOROPHENOL | BDL | 330 |
| 6A. | P-CHLORO-M-CRESOL | BDL | 330 |
| 7A. | 2,4,6-TRICHLOROPHENOL | BDL | 330 |
| 8A. | 2,4-DINITROPHENOL | BDL | 1600 |
| 9A. | 4-NITROPHENOL | BDL | 1600 |
| 10A. | 4,6-DINITRO-O-CRESOL | BDL | 1600 |
| 11A. | PENTACHLOROPHENOL | BDL | 1600 |

Surrogate Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| 2-Fluorophenol | 67 | (20-140) |
| $D_5$-Phenol | 83 | (20-140) |
| 2,4,6-Tribromophenol | 73 | (10-140) |

BDL= BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES

SAMPLE IDENTIFIER: AC-4
COMPUCHEM® SAMPLE NUMBER: 114099

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1B. | N-NITROSODIMETHYLAMINE | BDL | 330 |
| 2B. | BIS (2-CHLOROETHYL) ETHER | BDL | 330 |
| 3B. | 1,3-DICHLOROBENZENE | BDL | 330 |
| 4B. | 1,4-DICHLOROBENZENE | BDL | 330 |
| 5B. | 1,2-DICHLOROBENZENE | BDL | 330 |
| 6B. | BIS (2-CHLOROISOPROPYL) ETHER | BDL | 330 |
| 7B. | N-NITROSODI-N-PROPYLAMINE | BDL | 330 |
| 8B. | HEXACHLOROETHANE | BDL | 330 |
| 9B. | NITROBENZENE | BDL | 330 |
| 10B. | ISOPHORONE | BDL | 330 |
| 11B. | BIS(2-CHLOROETHOXY) METHANE | BDL | 330 |
| 12B. | 1,2,4-TRICHLOROBENZENE | BDL | 330 |
| 13B. | NAPHTHALENE | BDL | 330 |
| 14B. | HEXACHLOROBUTADIENE | BDL | 330 |
| 15B. | HEXACHLOROCYCLOPENTADIENE | BDL | 330 |
| 16B. | 2-CHLORONAPHTHALENE | BDL | 330 |
| 17B. | DIMETHYLPHTHALATE | BDL | 330 |
| 18B. | ACENAPHTHYLENE | BDL | 330 |
| 19B. | 2,6-DINITROTOLUENE | BDL | 330 |
| 20B. | ACENAPHTHENE | BDL | 330 |
| 21B. | 2,4-DINITROTOLUENE | BDL | 330 |
| 22B. | DIETHYLPHTHALATE | BDL | 330 |
| 23B. | 4-CHLOROPHENYL PHENYL ETHER | BDL | 330 |
| 24B. | FLUORENE | BDL | 330 |
| 25B. | DIPHENYLAMINE (N-NITROSO) | BDL | 330 |
| 26B. | 1,2-DIPHENYLHYDRAZINE (AZOBENZENE) | BDL | 330 |
| 27B. | 4-BROMOPHENYL PHENYL ETHER | BDL | 330 |
| 28B. | HEXACHLOROBENZENE | BDL | 330 |

(Continued)

BDL=BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES (Page Two)

SAMPLE IDENTIFIER: AC-4
COMPUCHEM® SAMPLE NUMBER: 114099

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 29B. | PHENANTHRENE | BDL | 330 |
| 30B. | ANTHRACENE | BDL | 330 |
| 31B. | DI-N-BUTYLPHTHALATE | BDL | 330 |
| 32B. | FLUORANTHENE | BDL | 330 |
| 33B. | PYRENE | BDL | 330 |
| 34B. | BENZIDINE | BDL | 1600 |
| 35B. | BUTYLBENZYLPHTHALATE | BDL | 330 |
| 36B. | 3,3'-DICHLOROBENZIDINE | BDL | 660 |
| 37B. | BENZO(A)ANTHRACENE | BDL | 330 |
| 38B. | BIS(2-ETHYLHEXYL)PHTHALATE | BDL | 330 |
| 39B. | CHRYSENE | BDL | 330 |
| 40B. | DI-N-OCTYLPHTHALATE | BDL | 330 |
| 41B. | BENZO(B)FLUORANTHENE | BDL | 330 |
| 42B. | BENZO(K)FLUORANTHENE | BDL | 330 |
| 43B. | BENZO(A)PYRENE | BDL | 330 |
| 44B. | INDENO(1,2,3-C,D)PYRENE | BDL | 330 |
| 45B. | DIBENZO(A,H)ANTHRACENE | BDL | 330 |
| 46B. | BENZO(G,H,I)PERYLENE | BDL | 330 |

Surrogates Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| $D_5$-Nitrobenzene | 74 | (20-140) |
| 2-Fluorobiphenyl | 75 | (20-140) |
| $D_{14}$-Terphenyl | 85 | (20-150) |
| D10-Pyrene* | 79 | * |

BDL=BELOW DETECTION LIMIT
*Advisory Surrogate; therefore no control range.

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-4
COMPUCHEM® SAMPLE NUMBER: 114099

### ACID

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114142 | OK |
| Sample Spike | 112994 | OK |
| DFTPP* | DF870107C20 | OK |
| Shift Standard | AS870107C20 | OK |

### BASE/NEUTRAL

| | | |
|---|---|---|
| Blank | 114142 | OK |
| Sample Spike | 112994 | OK |
| DFTPP* | DF870108C22 | OK |
| Shift Standard | BT870108C22 | OK |

*The tuning calibration compound, Decafluorotriphenylphosphine, is used for the acid and base/neutral instruments.

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P.O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE PESTICIDES/PCBs FRACTION ANALYZED |
|---|---|---|---|---|---|
| 1. | AC-4 | 114100 | 01/06/87 | 01/07/87 | 01/07/87<br>01/12/87* |

*Sample extract re-analyzed after florisil column clean-up.

COMPOUND LIST -- PESTICIDES/PCBs

SAMPLE IDENTIFIER: AC-4
COMPUCHEM® SAMPLE NUMBER: 114100

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1P. | ALDRIN | BDL | 2.0 |
| 2P. | ALPHA-BHC | BDL | 2.0 |
| 3P. | BETA-BHC | BDL | 2.0 |
| 4P. | GAMMA-BHC | BDL | 2.0 |
| 5P. | DELTA-BHC | BDL | 2.0 |
| 6P. | CHLORDANE (TECHNICAL) | BDL | 10 |
| 7P. | 4,4'-DDT | BDL | 2.0 |
| 8P. | 4,4'-DDE | BDL | 2.0 |
| 9P. | 4,4'-DDD | BDL | 2.0 |
| 10P. | DIELDRIN | BDL | 2.0 |
| 11P. | ALPHA-ENDOSULFAN | BDL | 2.0 |
| 12P. | BETA-ENDOSULFAN | BDL | 2.0 |
| 13P. | ENDOSULFAN SULFATE | BDL | 2.0 |
| 14P. | ENDRIN | BDL | 2.0 |
| 15P. | ENDRIN ALDEHYDE | BDL | 2.0 |
| 16P. | HEPTACHLOR | BDL | 2.0 |
| 17P. | HEPTACHLOR EPOXIDE | BDL | 2.0 |
| 18P. | PCB-1242 | BDL | 20 |
| 19P. | PCB-1254 | BDL | 20 |
| 20P. | PCB-1221 | BDL | 20 |
| 21P. | PCB-1232 | BDL | 20 |
| 22P. | PCB-1248 | BDL | 20 |
| 23P. | PCB-1260 | BDL | 20 |
| 24P. | PCB-1016 | BDL | 20 |
| 25P. | TOXAPHENE | BDL | 20 |

Surrogate Recovery - Introduced at the beginning of the extraction, the surrogate standard is a select compound that analytically mimics the response of certain analytes. A known concentration of this surrogate is added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | % Recovery | Control Range % |
|---|---|---|
| Dibutylchlorendate | 36 | 20-150* |

*Advisory surrogate; with the exception of dilutions recovery below 10% requires action step (re-extraction and re-analysis).

BDL=BELOW DETECTION LIMIT

# QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-4
COMPUCHEM® SAMPLE NUMBER: 114100

## PESTICIDES

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114146 | OK |
| Duplicate | 114089 | OK |
| Sample Spike | 114088 | OK |
| Shift Standards | | |
| Pesticide/PCBs Standard | | OK |

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P.O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE BASE/NEUTRAL FRACTION ANALYZED |
|---|---|---|---|---|---|
| 1. | AC-5 | 116482 | 01/28/87 | 01/30/87 | 02/04/87 |

## METHOD REFERENCE

For the initial sample preparation, CompuChem employs a modification of the current EPA Contract Laboratory Program (CLP) procedure for the Determination of Low Levels of Semivolatile Organics in Soil and Sediments. Further sample preparation, specifically the extract partitioning technique, is taken from the second edition of "The Test Methods For Evaluating Solid Waste", SW-846. Analysis for the acid and base/neutral priority pollutants is performed in accordance with USEPA Method 625 Volume 49, October 26, 1984.

### Method Summary

A nominal amount of sample, approximately 30 grams, is mixed with (anhydrous) sodium sulfate and serially extracted with a 50/50 mixture of methylene chloride and acetone using sonication. The solvent extract is then concentrated and partitioned into seperate base/neutral and acid extracts. The base/neutral extract is generated by washing the solvent extract with a basic (pH greater than 11) water wash which removes the acid constituents from the organic extract. The organic extract, now containing only base/neutral compounds, is then dried and concentrated. The pH of the aqueous basic wash is adjusted to less than 2 and serially extracted with methylene chloride. The methylene chloride containing the acid compounds is dried and concentrated.

Qualitative identification is performed using the retention time and the relative abundance of three characteristic ions. Quantitative analysis is performed using either external or internal standard techniques.

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES

SAMPLE IDENTIFIER: AC-5
COMPUCHEM® SAMPLE NUMBER: 116482

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 1B. | N-NITROSODIMETHYLAMINE | BDL | 330 |
| 2B. | BIS (2-CHLOROETHYL) ETHER | BDL | 330 |
| 3B. | 1,3-DICHLOROBENZENE | BDL | 330 |
| 4B. | 1,4-DICHLOROBENZENE | BDL | 330 |
| 5B. | 1,2-DICHLOROBENZENE | BDL | 330 |
| 6B. | BIS (2-CHLOROISOPROPYL) ETHER | BDL | 330 |
| 7B. | N-NITROSODI-N-PROPYLAMINE | BDL | 330 |
| 8B. | HEXACHLOROETHANE | BDL | 330 |
| 9B. | NITROBENZENE | BDL | 330 |
| 10B. | ISOPHORONE | BDL | 330 |
| 11B. | BIS(2-CHLOROETHOXY) METHANE | BDL | 330 |
| 12B. | 1,2,4-TRICHLOROBENZENE | BDL | 330 |
| 13B. | NAPHTHALENE | BDL | 330 |
| 14B. | HEXACHLOROBUTADIENE | BDL | 330 |
| 15B. | HEXACHLOROCYCLOPENTADIENE | BDL | 330 |
| 16B. | 2-CHLORONAPHTHALENE | BDL | 330 |
| 17B. | DIMETHYLPHTHALATE | BDL | 330 |
| 18B. | ACENAPHTHYLENE | BDL | 330 |
| 19B. | 2,6-DINITROTOLUENE | BDL | 330 |
| 20B. | ACENAPHTHENE | BDL | 330 |
| 21B. | 2,4-DINITROTOLUENE | BDL | 330 |
| 22B. | DIETHYLPHTHALATE | BDL | 330 |
| 24B. | 4-CHLOROPHENYL PHENYL ETHER | BDL | 330 |
| 23B. | FLUORENE | BDL | 330 |
| 25B. | DIPHENYLAMINE (N-NITROSO) | BDL | 330 |
| 26B. | 1,2-DIPHENYLHYDRAZINE (AZOBENZENE) | BDL | 330 |
| 27B. | 4-BROMOPHENYL PHENYL ETHER | BDL | 330 |
| 28B. | HEXACHLOROBENZENE | BDL | 330 |

(Continued)

BDL=BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES (Page Two)

SAMPLE IDENTIFIER: AC-5
COMPUCHEM® SAMPLE NUMBER: 116482

| | | CONCENTRATION (UG/KG) | DETECTION LIMIT (UG/KG) |
|---|---|---|---|
| 29B. | PHENANTHRENE | BDL | 330 |
| 30B. | ANTHRACENE | BDL | 330 |
| 31B. | DI-N-BUTYLPHTHALATE | BDL | 330 |
| 32B. | FLUORANTHENE | BDL | 330 |
| 33B. | PYRENE | BDL | 330 |
| 34B. | BENZIDINE | BDL | 1600 |
| 35B. | BUTYLBENZYLPHTHALATE | BDL | 330 |
| 36B. | 3,3'-DICHLOROBENZIDINE | BDL | 660 |
| 37B. | BENZO(A)ANTHRACENE | BDL | 330 |
| 38B. | BIS(2-ETHYLHEXYL)PHTHALATE | BDL | 330 |
| 39B. | CHRYSENE | BDL | 330 |
| 40B. | DI-N-OCTYLPHTHALATE | BDL | 330 |
| 41B. | BENZO(B)FLUORANTHENE | BDL | 330 |
| 42B. | BENZO(K)FLUORANTHENE | BDL | 330 |
| 43B. | BENZO(A)PYRENE | BDL | 330 |
| 44B. | INDENO(1,2,3-C,D)PYRENE | BDL | 330 |
| 45B. | DIBENZO(A,H)ANTHRACENE | BDL | 330 |
| 46B. | BENZO(G,H,I)PERYLENE | BDL | 330 |

Surrogates Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| $D_5$-Nitrobenzene | 52 | (20-140) |
| 2-Fluorobiphenyl | 54 | (20-140) |
| $D_{14}$-Terphenyl | 58 | (20-150) |
| $D_{10}$-Pyrene* | 70 | * |

BDL=BELOW DETECTION LIMIT
*Advisory Surrogate; therefore no control range.

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-5
COMPUCHEM® SAMPLE NUMBER: 116482

BASE/NEUTRAL

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 116973 | OK |
| Sample Spike | 116483 | OK |
| DFTPP* | DH870204A22 | OK |
| Shift Standard | BS870204A22 | OK |

*The tuning calibration compound, Decafluorotriphenylphosphine, is used for the base/neutral instruments.

Organics
Stream

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE VOLATILE FRACTION ANALYZED |
|---|---|---|---|---|
| 1. | AC-1a | 114083 | 01/06/87 | 01/08/87 |

COMPOUND LIST - VOLATILE ORGANICS

SAMPLE IDENTIFIER: AC-1a
COMPUCHEM® SAMPLE NUMBER: 114083

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1V. | CHLOROMETHANE | BDL | 10 |
| 2V. | BROMOMETHANE | BDL | 10 |
| 3V. | VINYL CHLORIDE | BDL | 10 |
| 4V. | CHLOROETHANE | BDL | 10 |
| 5V. | METHYLENE CHLORIDE | 29 | 10 |
| 6V. | ACROLEIN | BDL | 100 |
| 7V. | ACRYLONITRILE | BDL | 100 |
| 8V. | 1,1-DICHLOROETHYLENE | BDL | 10 |
| 9V. | 1,1-DICHLOROETHANE | BDL | 10 |
| 10V. | TRANS-1,2-DICHLOROETHYLENE | BDL | 10 |
| 11V. | CHLOROFORM | BDL | 10 |
| 12V. | 1,2-DICHLOROETHANE | BDL | 10 |
| 13V. | 1,1,1-TRICHLOROETHANE | BDL | 10 |
| 14V. | CARBON TETRACHLORIDE | BDL | 10 |
| 15V. | BROMODICHLOROMETHANE | BDL | 10 |
| 16V. | 1,2-DICHLOROPROPANE | BDL | 10 |
| 17V. | TRANS-1,3-DICHLOROPROPENE | BDL | 10 |
| 18V. | TRICHLOROETHYLENE | BDL | 10 |
| 19V. | DIBROMOCHLOROMETHANE | BDL | 10 |
| 20V. | 1,1,2-TRICHLOROETHANE | BDL | 10 |
| 21V. | BENZENE | BDL | 10 |
| 22V. | CIS-1,3-DICHLOROPROPENE | BDL | 10 |
| 23V. | 2-CHLOROETHYL VINYL ETHER | BDL | 10 |
| 24V. | BROMOFORM | BDL | 10 |
| 25V. | TETRACHLOROETHYLENE | BDL | 10 |
| 26V. | 1,1,2,2-TETRACHLOROETHANE | BDL | 10 |
| 27V. | TOLUENE | BDL | 10 |
| 28V. | CHLOROBENZENE | BDL | 10 |
| 29V. | ETHYLBENZENE | BDL | 10 |

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| $D_4$-1,2-Dichloroethane | 85 | (77-120) |
| 4-Bromofluorobenzene | 95 | (85-121) |
| $D_8$-Toluene | 94 | (86-119) |

BDL= BELOW DETECTION LIMIT

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-1a
COMPUCHEM® SAMPLE NUMBER: 114083

### VOLATILE

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114148 | OK |
| Sample Spike | 113932 | OK |
| BFB* | BF870107B19 | OK |
| Shift Standard | VT870107B19 | OK |

*The tuning calibration compound, Bromofluorobenzene, is used for the volatile instruments.

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE ACID FRACTION ANALYZED | DATE BASE/NEUTRAL FRACTION ANALYZED |
|---|---|---|---|---|---|---|
| 1. | AC-1a | 114081 | 01/06/87 | 01/08/87 | 01/10/87 | 01/09/87 |

COMPOUND LIST -- ACID EXTRACTABLES

SAMPLE IDENTIFIER: AC-1a
COMPUCHEM® SAMPLE NUMBER: 114081

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1A. | PHENOL | BDL | 10 |
| 2A. | 2-CHLOROPHENOL | BDL | 10 |
| 3A. | 2-NITROPHENOL | BDL | 10 |
| 4A. | 2,4-DIMETHYLPHENOL | BDL | 10 |
| 5A. | 2,4-DICHLOROPHENOL | BDL | 10 |
| 6A. | P-CHLORO-M-CRESOL | BDL | 10 |
| 7A. | 2,4,6-TRICHLOROPHENOL | BDL | 10 |
| 8A. | 2,4-DINITROPHENOL | BDL | 50 |
| 9A. | 4-NITROPHENOL | BDL | 50 |
| 10A. | 4,6-DINITRO-O-CRESOL | BDL | 50 |
| 11A. | PENTACHLOROPHENOL | BDL | 50 |

Surrogate Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| 2-Fluorophenol | 68 | (23-121) |
| $D_5$-Phenol | 48 | (15-103) |
| 2,4,6-Tribromophenol | 90 | (10-130) |

BDL= BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES

SAMPLE IDENTIFIER: AC-1a
COMPUCHEM® SAMPLE NUMBER: 114081

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1B. | N-NITROSODIMETHYLAMINE | BDL | 10 |
| 2B. | BIS (2-CHLOROETHYL) ETHER | BDL | 10 |
| 3B. | 1,3-DICHLOROBENZENE | BDL | 10 |
| 4B. | 1,4-DICHLOROBENZENE | BDL | 10 |
| 5B. | 1,2-DICHLOROBENZENE | BDL | 10 |
| 6B. | BIS (2-CHLOROISOPROPYL) ETHER | BDL | 10 |
| 7B. | N-NITROSODI-N-PROPYLAMINE | BDL | 10 |
| 8B. | HEXACHLOROETHANE | BDL | 10 |
| 9B. | NITROBENZENE | BDL | 10 |
| 10B. | ISOPHORONE | BDL | 10 |
| 11B. | BIS(2-CHLOROETHOXY) METHANE | BDL | 10 |
| 12B. | 1,2,4-TRICHLOROBENZENE | BDL | 10 |
| 13B. | NAPHTHALENE | BDL | 10 |
| 14B. | HEXACHLOROBUTADIENE | BDL | 10 |
| 15B. | HEXACHLOROCYCLOPENTADIENE | BDL | 10 |
| 16B. | 2-CHLORONAPHTHALENE | BDL | 10 |
| 17B. | DIMETHYLPHTHALATE | BDL | 10 |
| 18B. | ACENAPHTHYLENE | BDL | 10 |
| 19B. | 2,6-DINITROTOLUENE | BDL | 10 |
| 20B. | ACENAPHTHENE | BDL | 10 |
| 21B. | 2,4-DINITROTOLUENE | BDL | 10 |
| 22B. | DIETHYLPHTHALATE | BDL | 10 |
| 23B. | 4-CHLOROPHENYL PHENYL ETHER | BDL | 10 |
| 24B. | FLUORENE | BDL | 10 |
| 25B. | DIPHENYLAMINE (N-NITROSO) | BDL | 10 |
| 26B. | 1,2-DIPHENYLHYDRAZINE (AZOBENZENE) | BDL | 10 |
| 27B. | 4-BROMOPHENYL PHENYL ETHER | BDL | 10 |
| 28B. | HEXACHLOROBENZENE | BDL | 10 |

(Continued)

BDL=BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES (Page Two)

SAMPLE IDENTIFIER: AC-1a
COMPUCHEM® SAMPLE NUMBER: 114081

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 29B. | PHENANTHRENE | BDL | 10 |
| 30B. | ANTHRACENE | BDL | 10 |
| 31B. | DI-N-BUTYLPHTHALATE | BDL | 10 |
| 32B. | FLUORANTHENE | BDL | 10 |
| 33B. | PYRENE | BDL | 10 |
| 34B. | BENZIDINE | BDL | 50 |
| 35B. | BUTYLBENZYLPHTHALATE | BDL | 10 |
| 37B. | 3,3'-DICHLOROBENZIDINE | BDL | 20 |
| 36B. | BENZO(A)ANTHRACENE | BDL | 10 |
| 39B. | BIS(2-ETHYLHEXYL)PHTHALATE | BDL | 10 |
| 38B. | CHRYSENE | BDL | 10 |
| 40B. | DI-N-OCTYLPHTHALATE | BDL | 10 |
| 41B. | BENZO(B)FLUORANTHENE | BDL | 10 |
| 42B. | BENZO(K)FLUORANTHENE | BDL | 10 |
| 43B. | BENZO(A)PYRENE | BDL | 10 |
| 44B. | INDENO(1,2,3-C,D)PYRENE | BDL | 10 |
| 45B. | DIBENZO(A,H)ANTHRACENE | BDL | 10 |
| 46B. | BENZO(G,H,I)PERYLENE | BDL | 10 |

Surrogates Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| $D_5$-Nitrobenzene | 84 | (41-120) |
| 2-Fluorobiphenyl | 85 | (44-119) |
| $D_{14}$-Terphenyl | 100 | (33-128) |
| $D_{10}$-Pyrene* | 98 | * |

BDL=BELOW DETECTION LIMIT
*Advisory Surrogate; therefore no control range

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-1a
COMPUCHEM® SAMPLE NUMBER: 114081

### ACID

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114257 | OK |
| Sample Spike | 113305 | OK |
| DFTPP* | DH870110A16 | OK |
| Shift Standard | AV870110A16 | OK |

### BASE/NEUTRAL

| | | |
|---|---|---|
| Blank | 114257 | OK |
| Blank Spike | 113306 | OK |
| Sample Spike | 113305 | ** |
| DFTPP* | DF870109C21 | OK |
| Shift Standard | BS870109C21 | OK |

*The tuning calibration compound, Decafluorotriphenylphosphine, is used for the acid and base/neutral instruments.

**See Quality Assurance Notice

QUALITY ASSURANCE NOTICE

Matrix Spike # 113305
Original # 113312
Blank Spike # 113306

The Base/Neutral fraction of this matrix spike was diluted in order to achieve accurate and discernible results by GC/MS analysis. As a result, detection limits were elevated above surrogate and spike compound concentrations. These compounds were assessed in a blank spike, prepared with this batch of samples, and found to meet all QC acceptance criteria.

Reviewer's Initials ESB

Date 01/05/87

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE PESTICIDES/PCBs FRACTION ANALYZED |
|---|---|---|---|---|---|
| 1. | AC-1a | 114082 | 01/06/87 | 01/06/87 | 01/07/87 |

COMPOUND LIST -- PESTICIDES/PCBs

SAMPLE IDENTIFIER: AC-1a
COMPUCHEM® SAMPLE NUMBER: 114082

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1P. | ALDRIN | BDL | 0.10 |
| 2P. | ALPHA-BHC | BDL | 0.10 |
| 3P. | BETA-BHC | BDL | 0.10 |
| 4P. | GAMMA-BHC | BDL | 0.10 |
| 5P. | DELTA-BHC | BDL | 0.10 |
| 6P. | CHLORDANE (TECHNICAL) | BDL | 0.50 |
| 7P. | 4,4'-DDT | BDL | 0.10 |
| 8P. | 4,4'-DDE | BDL | 0.10 |
| 9P. | 4,4'-DDD | BDL | 0.10 |
| 10P. | DIELDRIN | BDL | 0.10 |
| 11P. | ALPHA-ENDOSULFAN | BDL | 0.10 |
| 12P. | BETA-ENDOSULFAN | BDL | 0.10 |
| 13P. | ENDOSULFAN SULFATE | BDL | 0.10 |
| 14P. | ENDRIN | BDL | 0.10 |
| 15P. | ENDRIN ALDEHYDE | BDL | 0.10 |
| 16P. | HEPTACHLOR | BDL | 0.10 |
| 17P. | HEPTACHLOR EPOXIDE | BDL | 0.10 |
| 18P. | PCB-1242 | BDL | 1.0 |
| 19P. | PCB-1254 | BDL | 1.0 |
| 20P. | PCB-1221 | BDL | 1.0 |
| 21P. | PCB-1232 | BDL | 1.0 |
| 22P. | PCB-1248 | BDL | 1.0 |
| 23P. | PCB-1260 | BDL | 1.0 |
| 24P. | PCB-1016 | BDL | 1.0 |
| 25P. | TOXAPHENE | BDL | 1.0 |

Surrogate Recovery - Introduced at the beginning of the extraction, the surrogate standard is a select compound that analytically mimics the response of certain analytes. A known concentration of this surrogate is added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| Dibutylchlorendate | 121 | (48-136)* |

BDL=BELOW DETECTION LIMIT
*Advisory surrogate; with the exception of dilutions recovery below 10% requires action step (re-extraction and re-analysis).

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AC-1a
COMPUCHEM® SAMPLE NUMBER: 114082

### PESTICIDES

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114139 | OK |
| Sample Spike | 113983 | OK |
| Shift Standards | | |
| Pesticide/PCBs Standards | | OK |

Organics
Ground-water Monitor Wells

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE VOLATILE FRACTION ANALYZED |
|---|---|---|---|---|
| 1. | AB-1 | 114406 | 01/09/87 | 01/12/87 |

COMPOUND LIST - VOLATILE ORGANICS

SAMPLE IDENTIFIER: AB-1
COMPUCHEM® SAMPLE NUMBER: 114406

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1V. | CHLOROMETHANE | BDL | 10 |
| 2V. | BROMOMETHANE | BDL | 10 |
| 3V. | VINYL CHLORIDE | BDL | 10 |
| 4V. | CHLOROETHANE | BDL | 10 |
| 5V. | METHYLENE CHLORIDE | 6 J | 10 |
| 6V. | ACROLEIN | BDL | 100 |
| 7V. | ACRYLONITRILE | BDL | 100 |
| 8V. | 1,1-DICHLOROETHYLENE | BDL | 10 |
| 9V. | 1,1-DICHLOROETHANE | BDL | 10 |
| 10V. | TRANS-1,2-DICHLOROETHYLENE | BDL | 10 |
| 11V. | CHLOROFORM | BDL | 10 |
| 12V. | 1,2-DICHLOROETHANE | BDL | 10 |
| 13V. | 1,1,1-TRICHLOROETHANE | BDL | 10 |
| 14V. | CARBON TETRACHLORIDE | BDL | 10 |
| 15V. | BROMODICHLOROMETHANE | BDL | 10 |
| 16V. | 1,2-DICHLOROPROPANE | BDL | 10 |
| 17V. | TRANS-1,3-DICHLOROPROPENE | BDL | 10 |
| 18V. | TRICHLOROETHYLENE | BDL | 10 |
| 19V. | DIBROMOCHLOROMETHANE | BDL | 10 |
| 20V. | 1,1,2-TRICHLOROETHANE | BDL | 10 |
| 21V. | BENZENE | BDL | 10 |
| 22V. | CIS-1,3-DICHLOROPROPENE | BDL | 10 |
| 23V. | 2-CHLOROETHYL VINYL ETHER | BDL | 10 |
| 24V. | BROMOFORM | BDL | 10 |
| 25V. | TETRACHLOROETHYLENE | BDL | 10 |
| 26V. | 1,1,2,2-TETRACHLOROETHANE | BDL | 10 |
| 27V. | TOLUENE | BDL | 10 |
| 28V. | CHLOROBENZENE | BDL | 10 |
| 29V. | ETHYLBENZENE | BDL | 10 |

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| $D_4$-1,2-Dichloroethane | 84 | (77-120) |
| 4-Bromofluorobenzene | 100 | (85-121) |
| $D_8$-Toluene | 95 | (86-119) |

BDL= BELOW DETECTION LIMIT
J=Estimated concentration; values are between the detection limit and one-half of that limit.

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AB-1
COMPUCHEM® SAMPLE NUMBER: 114406

### VOLATILE

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | VB870112B19 | OK |
| Sample Spike | 113932 | OK |
| BFB* | BF870112A19 | OK |
| Shift Standard | VS870112A19 | OK |

*The tuning calibration compound, Bromofluorobenzene, is used for the volatile instruments.

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T.R. Edgerton, Inc.
P.O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE ACID FRACTION ANALYZED | DATE BASE/NEUTRAL FRACTION ANALYZED |
|---|---|---|---|---|---|---|
| 1. | AB-1 | 114404 | 01/09/87 | 01/12/87 | 01/14/87 | 01/14/87 |

COMPOUND LIST -- ACID EXTRACTABLES

SAMPLE IDENTIFIER: AB-1
COMPUCHEM® SAMPLE NUMBER: 114404

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1A. | PHENOL | BDL | 10 |
| 2A. | 2-CHLOROPHENOL | BDL | 10 |
| 3A. | 2-NITROPHENOL | BDL | 10 |
| 4A. | 2,4-DIMETHYLPHENOL | BDL | 10 |
| 5A. | 2,4-DICHLOROPHENOL | BDL | 10 |
| 6A. | P-CHLORO-M-CRESOL | BDL | 10 |
| 7A. | 2,4,6-TRICHLOROPHENOL | BDL | 10 |
| 8A. | 2,4-DINITROPHENOL | BDL | 50 |
| 9A. | 4-NITROPHENOL | BDL | 50 |
| 10A. | 4,6-DINITRO-O-CRESOL | BDL | 50 |
| 11A. | PENTACHLOROPHENOL | BDL | 50 |

Surrogate Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| 2-Fluorophenol | 33 | (23-121) |
| $D_5$-Phenol | 30 | (15-103) |
| 2,4,6-Tribromophenol | 71 | (10-130) |

BDL= BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES

SAMPLE IDENTIFIER: AB-1
COMPUCHEM® SAMPLE NUMBER: 114404

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1B. | N-NITROSODIMETHYLAMINE | BDL | 10 |
| 2B. | BIS (2-CHLOROETHYL) ETHER | BDL | 10 |
| 3B. | 1,3-DICHLOROBENZENE | BDL | 10 |
| 4B. | 1,4-DICHLOROBENZENE | BDL | 10 |
| 5B. | 1,2-DICHLOROBENZENE | BDL | 10 |
| 6B. | BIS (2-CHLOROISOPROPYL) ETHER | BDL | 10 |
| 7B. | N-NITROSODI-N-PROPYLAMINE | BDL | 10 |
| 8B. | HEXACHLOROETHANE | BDL | 10 |
| 9B. | NITROBENZENE | BDL | 10 |
| 10B. | ISOPHORONE | BDL | 10 |
| 11B. | BIS(2-CHLOROETHOXY) METHANE | BDL | 10 |
| 12B. | 1,2,4-TRICHLOROBENZENE | BDL | 10 |
| 13B. | NAPHTHALENE | BDL | 10 |
| 14B. | HEXACHLOROBUTADIENE | BDL | 10 |
| 15B. | HEXACHLOROCYCLOPENTADIENE | BDL | 10 |
| 16B. | 2-CHLORONAPHTHALENE | BDL | 10 |
| 17B. | DIMETHYLPHTHALATE | BDL | 10 |
| 18B. | ACENAPHTHYLENE | BDL | 10 |
| 19B. | 2,6-DINITROTOLUENE | BDL | 10 |
| 20B. | ACENAPHTHENE | BDL | 10 |
| 21B. | 2,4-DINITROTOLUENE | BDL | 10 |
| 22B. | DIETHYLPHTHALATE | BDL | 10 |
| 23B. | 4-CHLOROPHENYL PHENYL ETHER | BDL | 10 |
| 24B. | FLUORENE | BDL | 10 |
| 25B. | DIPHENYLAMINE (N-NITROSO) | BDL | 10 |
| 26B. | 1,2-DIPHENYLHYDRAZINE (AZOBENZENE) | BDL | 10 |
| 27B. | 4-BROMOPHENYL PHENYL ETHER | BDL | 10 |
| 28B. | HEXACHLOROBENZENE | BDL | 10 |

(Continued)

BDL=BELOW DETECTION LIMIT

SAMPLE IDENTIFIER: AB-1
COMPUCHEM® SAMPLE NUMBER: 114404

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 29B. | PHENANTHRENE | BDL | 10 |
| 30B. | ANTHRACENE | BDL | 10 |
| 31B. | DI-N-BUTYLPHTHALATE | BDL | 10 |
| 32B. | FLUORANTHENE | BDL | 10 |
| 33B. | PYRENE | BDL | 10 |
| 34B. | BENZIDINE | BDL | 50 |
| 35B. | BUTYLBENZYLPHTHALATE | BDL | 10 |
| 36B. | 3,3'-DICHLOROBENZIDINE | BDL | 20 |
| 37B. | BENZO(A)ANTHRACENE | BDL | 10 |
| 38B. | BIS(2-ETHYLHEXYL)PHTHALATE | BDL | 10 |
| 39B. | CHRYSENE | BDL | 10 |
| 40B. | DI-N-OCTYLPHTHALATE | BDL | 10 |
| 41B. | BENZO(B)FLUORANTHENE | BDL | 10 |
| 42B. | BENZO(K)FLUORANTHENE | BDL | 10 |
| 43B. | BENZO(A)PYRENE | BDL | 10 |
| 44B. | INDENO(1,2,3-C,D)PYRENE | BDL | 10 |
| 45B. | DIBENZO(A,H)ANTHRACENE | BDL | 10 |
| 46B. | BENZO(G,H,I)PERYLENE | BDL | 10 |

Surrogates Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| $D_5$-Nitrobenzene | 50 | (41-120) |
| 2-Fluorobiphenyl | 47 | (44-119) |
| $D_{14}$-Terphenyl | 52 | (33-128) |
| $D_{10}$-Pyrene* | 50 | * |

BDL=BELOW DETECTION LIMIT
*Advisory Surrogate; therefore no control range.

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AB-1
COMPUCHEM® SAMPLE NUMBER: 114404

### ACID

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114487 | OK |
| Sample Spike | 114376 | OK |
| DFTPP* | DF870113B20 | OK |
| Shift Standard | AX870113B20 | OK |

### BASE/NEUTRAL

| | | |
|---|---|---|
| Blank | 114487 | OK |
| Sample Spike | 114376 | OK |
| DFTPP* | DF870114C21 | OK |
| Shift Standard | BS870114C21 | OK |

*The tuning calibration compound, Decafluorotriphenylphosphine, is used for the acid and base/neutral instruments.

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE PESTICIDES/PCBs FRACTION ANALYZED |
|---|---|---|---|---|---|
| 1. | AB-1 | 114405 | 01/09/87 | 01/12/87 | 01/13/87 |

COMPOUND LIST -- PESTICIDES/PCBs

SAMPLE IDENTIFIER: AB-1
COMPUCHEM® SAMPLE NUMBER: 114405

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1P. | ALDRIN | BDL | 0.10 |
| 2P. | ALPHA-BHC | BDL | 0.10 |
| 3P. | BETA-BHC | BDL | 0.10 |
| 4P. | GAMMA-BHC | BDL | 0.10 |
| 5P. | DELTA-BHC | BDL | 0.10 |
| 6P. | CHLORDANE (TECHNICAL) | BDL | 0.50 |
| 7P. | 4,4'-DDT | BDL | 0.10 |
| 8P. | 4,4'-DDE | BDL | 0.10 |
| 9P. | 4,4'-DDD | BDL | 0.10 |
| 10P. | DIELDRIN | BDL | 0.10 |
| 11P. | ALPHA-ENDOSULFAN | BDL | 0.10 |
| 12P. | BETA-ENDOSULFAN | BDL | 0.10 |
| 13P. | ENDOSULFAN SULFATE | BDL | 0.10 |
| 14P. | ENDRIN | BDL | 0.10 |
| 15P. | ENDRIN ALDEHYDE | BDL | 0.10 |
| 16P. | HEPTACHLOR | BDL | 0.10 |
| 17P. | HEPTACHLOR EPOXIDE | BDL | 0.10 |
| 18P. | PCB-1242 | BDL | 1.0 |
| 19P. | PCB-1254 | BDL | 1.0 |
| 20P. | PCB-1221 | BDL | 1.0 |
| 21P. | PCB-1232 | BDL | 1.0 |
| 22P. | PCB-1248 | BDL | 1.0 |
| 23P. | PCB-1260 | BDL | 1.0 |
| 24P. | PCB-1016 | BDL | 1.0 |
| 25P. | TOXAPHENE | BDL | 1.0 |

Surrogate Recovery - Introduced at the beginning of the extraction, the surrogate standard is a select compound that analytically mimics the response of certain analytes. A known concentration of this surrogate is added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| Dibutylchlorendate | 49 | (48-136)* |

BDL=BELOW DETECTION LIMIT
*Advisory surrogate; with the exception of dilutions recovery below 10% requires action step (re-extraction and re-analysis).

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AB-1
COMPUCHEM® SAMPLE NUMBER: 114405

### PESTICIDES

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114501 | OK |
| Sample Spike | 113983 | OK |
| Shift Standards | | |
| Pesticide/PCBs Standards | | OK |

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE VOLATILE FRACTION ANALYZED |
|---|---|---|---|---|
| 1. | AB-2 | 114409 | 01/09/87 | 01/12/87 |

COMPOUND LIST - VOLATILE ORGANICS

SAMPLE IDENTIFIER: AB-2
COMPUCHEM® SAMPLE NUMBER: 114409

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1V. | CHLOROMETHANE | BDL | 10 |
| 2V. | BROMOMETHANE | BDL | 10 |
| 3V. | VINYL CHLORIDE | BDL | 10 |
| 4V. | CHLOROETHANE | BDL | 10 |
| 5V. | METHYLENE CHLORIDE | BDL | 10 |
| 6V. | ACROLEIN | BDL | 100 |
| 7V. | ACRYLONITRILE | BDL | 100 |
| 8V. | 1,1-DICHLOROETHYLENE | BDL | 10 |
| 9V. | 1,1-DICHLOROETHANE | BDL | 10 |
| 10V. | TRANS-1,2-DICHLOROETHYLENE | BDL | 10 |
| 11V. | CHLOROFORM | BDL | 10 |
| 12V. | 1,2-DICHLOROETHANE | BDL | 10 |
| 13V. | 1,1,1-TRICHLOROETHANE | BDL | 10 |
| 14V. | CARBON TETRACHLORIDE | BDL | 10 |
| 15V. | BROMODICHLOROMETHANE | BDL | 10 |
| 16V. | 1,2-DICHLOROPROPANE | BDL | 10 |
| 17V. | TRANS-1,3-DICHLOROPROPENE | BDL | 10 |
| 18V. | TRICHLOROETHYLENE | BDL | 10 |
| 19V. | DIBROMOCHLOROMETHANE | BDL | 10 |
| 20V. | 1,1,2-TRICHLOROETHANE | BDL | 10 |
| 21V. | BENZENE | BDL | 10 |
| 22V. | CIS-1,3-DICHLOROPROPENE | BDL | 10 |
| 23V. | 2-CHLOROETHYL VINYL ETHER | BDL | 10 |
| 24V. | BROMOFORM | BDL | 10 |
| 25V. | TETRACHLOROETHYLENE | BDL | 10 |
| 26V. | 1,1,2,2-TETRACHLOROETHANE | BDL | 10 |
| 27V. | TOLUENE | BDL | 10 |
| 28V. | CHLOROBENZENE | BDL | 10 |
| 29V. | ETHYLBENZENE | BDL | 10 |

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| $D_4$-1,2-Dichloroethane | 82 | (77-120) |
| 4-Bromofluorobenzene | 98 | (85-121) |
| $D_8$-Toluene | 97 | (86-119) |

BDL= BELOW DETECTION LIMIT

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AB-2
COMPUCHEM® SAMPLE NUMBER: 114409

### VOLATILE

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | VB870112A19 | OK |
| Sample Spike | 114410 | OK |
| BFB* | BF870112C19 | OK |
| Shift Standard | VU870112C19 | OK |

*The tuning calibration compound, Bromofluorobenzene, is used for the volatile instruments.

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T.R. Edgerton, Inc.
P.O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE ACID FRACTION ANALYZED | DATE BASE/NEUTRAL FRACTION ANALYZED |
|---|---|---|---|---|---|---|
| 1. | AB-2 | 114407 | 01/09/87 | 01/12/87 | 01/14/87 | 01/15/87 |

COMPOUND LIST -- ACID EXTRACTABLES

SAMPLE IDENTIFIER: AB-2
COMPUCHEM® SAMPLE NUMBER: 114407

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1A. | PHENOL | BDL | 10 |
| 2A. | 2-CHLOROPHENOL | BDL | 10 |
| 3A. | 2-NITROPHENOL | BDL | 10 |
| 4A. | 2,4-DIMETHYLPHENOL | BDL | 10 |
| 5A. | 2,4-DICHLOROPHENOL | BDL | 10 |
| 6A. | P-CHLORO-M-CRESOL | BDL | 10 |
| 7A. | 2,4,6-TRICHLOROPHENOL | BDL | 10 |
| 8A. | 2,4-DINITROPHENOL | BDL | 50 |
| 9A. | 4-NITROPHENOL | BDL | 50 |
| 10A. | 4,6-DINITRO-O-CRESOL | BDL | 50 |
| 11A. | PENTACHLOROPHENOL | BDL | 50 |

Surrogate Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| 2-Fluorophenol | 56 | (23-121) |
| $D_5$-Phenol | 59 | (15-103) |
| 2,4,6-Tribromophenol | 72 | (10-130) |

BDL= BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES

SAMPLE IDENTIFIER: AB-2
COMPUCHEM® SAMPLE NUMBER: 114407

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1B. | N-NITROSODIMETHYLAMINE | BDL | 10 |
| 2B. | BIS (2-CHLOROETHYL) ETHER | BDL | 10 |
| 3B. | 1,3-DICHLOROBENZENE | BDL | 10 |
| 4B. | 1,4-DICHLOROBENZENE | BDL | 10 |
| 5B. | 1,2-DICHLOROBENZENE | BDL | 10 |
| 6B. | BIS (2-CHLOROISOPROPYL) ETHER | BDL | 10 |
| 7B. | N-NITROSODI-N-PROPYLAMINE | BDL | 10 |
| 8B. | HEXACHLOROETHANE | BDL | 10 |
| 9B. | NITROBENZENE | BDL | 10 |
| 10B. | ISOPHORONE | BDL | 10 |
| 11B. | BIS(2-CHLOROETHOXY) METHANE | BDL | 10 |
| 12B. | 1,2,4-TRICHLOROBENZENE | BDL | 10 |
| 13B. | NAPHTHALENE | BDL | 10 |
| 14B. | HEXACHLOROBUTADIENE | BDL | 10 |
| 15B. | HEXACHLOROCYCLOPENTADIENE | BDL | 10 |
| 16B. | 2-CHLORONAPHTHALENE | BDL | 10 |
| 17B. | DIMETHYLPHTHALATE | BDL | 10 |
| 18B. | ACENAPHTHYLENE | BDL | 10 |
| 19B. | 2,6-DINITROTOLUENE | BDL | 10 |
| 20B. | ACENAPHTHENE | BDL | 10 |
| 21B. | 2,4-DINITROTOLUENE | BDL | 10 |
| 22B. | DIETHYLPHTHALATE | BDL | 10 |
| 23B. | 4-CHLOROPHENYL PHENYL ETHER | BDL | 10 |
| 24B. | FLUORENE | BDL | 10 |
| 25B. | DIPHENYLAMINE (N-NITROSO) | BDL | 10 |
| 26B. | 1,2-DIPHENYLHYDRAZINE (AZOBENZENE) | BDL | 10 |
| 27B. | 4-BROMOPHENYL PHENYL ETHER | BDL | 10 |
| 28B. | HEXACHLOROBENZENE | BDL | 10 |

(Continued)

BDL=BELOW DETECTION LIMIT

SAMPLE IDENTIFIER: AB-2
COMPUCHEM® SAMPLE NUMBER: 114407

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 29B. | PHENANTHRENE | BDL | 10 |
| 30B. | ANTHRACENE | BDL | 10 |
| 31B. | DI-N-BUTYLPHTHALATE | BDL | 10 |
| 32B. | FLUORANTHENE | BDL | 10 |
| 33B. | PYRENE | BDL | 10 |
| 34B. | BENZIDINE | BDL | 50 |
| 35B. | BUTYLBENZYLPHTHALATE | BDL | 10 |
| 36B. | 3,3'-DICHLOROBENZIDINE | BDL | 20 |
| 37B. | BENZO(A)ANTHRACENE | BDL | 10 |
| 38B. | BIS(2-ETHYLHEXYL)PHTHALATE | BDL | 10 |
| 39B. | CHRYSENE | BDL | 10 |
| 40B. | DI-N-OCTYLPHTHALATE | BDL | 10 |
| 41B. | BENZO(B)FLUORANTHENE | BDL | 10 |
| 42B. | BENZO(K)FLUORANTHENE | BDL | 10 |
| 43B. | BENZO(A)PYRENE | BDL | 10 |
| 44B. | INDENO(1,2,3-C,D)PYRENE | BDL | 10 |
| 45B. | DIBENZO(A,H)ANTHRACENE | BDL | 10 |
| 46B. | BENZO(G,H,I)PERYLENE | BDL | 10 |

Surrogates Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| $D_5$-Nitrobenzene | 107 | (41-120) |
| 2-Fluorobiphenyl | 106 | (44-119) |
| $D_{14}$-Terphenyl | 114 | (33-128) |
| $D_{10}$-Pyrene* | 117 | * |

BDL=BELOW DETECTION LIMIT
*Advisory Surrogate; therefore no control range.

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AB-2
COMPUCHEM® SAMPLE NUMBER: 114407

### ACID

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114487 | OK |
| Sample Spike | 114376 | OK |
| DFTPP* | DF870113B20 | OK |
| Shift Standard | AX870113B20 | OK |

### BASE/NEUTRAL

| | | |
|---|---|---|
| Blank | 114487 | OK |
| Sample Spike | 114376 | OK |
| DFTPP* | DF870114B21 | OK |
| Shift Standard | BS870114B21 | OK |

*The tuning calibration compound, Decafluorotriphenylphosphine, is used for the acid and base/neutral instruments.

## METHOD REFERENCE

CompuChem® employs Method 625 for GC/MS analysis of acid and base/neutral organics in liquid matrices. This method is published in Volume 49, October 26, 1984 Federal Register.

## METHOD SUMMARY

As stated in the October 1984 reference, "A measured volume of sample, approximately one liter, is serially extracted with methylene chloride at a pH greater than 11 and again at pH less than 2 using a separatory funnel or a continuous extractor. The methylene chloride extract is dried and concentrated to a volume of 1 ml."

"Qualitative identification is performed using the retention time and the relative abundance of three characteristic ions. Quantitative analysis is performed using either external or internal standard techniques."

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P.O. Box 1307
975 Walnut Street
Cary, N.C. 27511

# T.R. Edgerton, Inc.

## CHAIN OF CUSTODY RECORD

PROJ. NO. 1052-003 | PROJECT NAME: Annandale

SAMPLERS: (Signature) Jeri L. Moore

| STA. NO. | DATE | TIME | COMP. | GRAB | STATION LOCATION | NO. OF CONTAINERS | BNA | VOA | PEST/PCB | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AB-1 | 1-9-87 | 905 | | ✓ | | 7 | 3 | 2 | 2 | | | | |
| AB-2 | 1-9-87 | 945 | | ✓ | | 7 | 3 | 2 | 2 | | | | |
| AB-3 | 1-9-87 | 1015 | | ✓ | | 7 | 3 | 2 | 2 | | | | |
| | | | | | | | | | | | | | 114404 |
| | | | | | | | | | | | | | 405 |
| | | | | | | | | | | | | | 406 |
| | | | | | | | | | | | | | 407 |
| | | | | | | | | | | | | | 408 |
| | | | | | | | | | | | | | 409 |
| | | | | | | | | | | | | | 412 |
| | | | | | | | | | | | | | 413 |
| | | | | | | | | | | | | | 414 |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
|---|---|---|---|---|---|
| Jeri L. Moore | 1-9-87 14:10 | | | | |
| Relinquished by: (Signature) | Date / Time | Received by: (Signature) | Relinquished by: (Signature) | Date / Time | Received by: (Signature) |
| | | | | | |
| Relinquished by: (Signature) | Date / Time | Received for Laboratory by: (Signature) | Date / Time | Remarks | |
| | | | 1/9/87 2:15 pm | | |

Distribution: Original Accompanies Shipment; Copy to Coordinator Field Files

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE PESTICIDES/PCBs FRACTION ANALYZED |
|---|---|---|---|---|---|
| 1. | AB-2 | 114408 | 01/09/87 | 01/12/87 | 01/13/87 |

COMPOUND LIST -- PESTICIDES/PCBs

SAMPLE IDENTIFIER: AB-2
COMPUCHEM® SAMPLE NUMBER: 114408

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1P. | ALDRIN | BDL | 0.10 |
| 2P. | ALPHA-BHC | BDL | 0.10 |
| 3P. | BETA-BHC | BDL | 0.10 |
| 4P. | GAMMA-BHC | BDL | 0.10 |
| 5P. | DELTA-BHC | BDL | 0.10 |
| 6P. | CHLORDANE (TECHNICAL) | BDL | 0.50 |
| 7P. | 4,4'-DDT | BDL | 0.10 |
| 8P. | 4,4'-DDE | BDL | 0.10 |
| 9P. | 4,4'-DDD | BDL | 0.10 |
| 10P. | DIELDRIN | BDL | 0.10 |
| 11P. | ALPHA-ENDOSULFAN | BDL | 0.10 |
| 12P. | BETA-ENDOSULFAN | BDL | 0.10 |
| 13P. | ENDOSULFAN SULFATE | BDL | 0.10 |
| 14P. | ENDRIN | BDL | 0.10 |
| 15P. | ENDRIN ALDEHYDE | BDL | 0.10 |
| 16P. | HEPTACHLOR | BDL | 0.10 |
| 17P. | HEPTACHLOR EPOXIDE | BDL | 0.10 |
| 18P. | PCB-1242 | BDL | 1.0 |
| 19P. | PCB-1254 | BDL | 1.0 |
| 20P. | PCB-1221 | BDL | 1.0 |
| 21P. | PCB-1232 | BDL | 1.0 |
| 22P. | PCB-1248 | BDL | 1.0 |
| 23P. | PCB-1260 | BDL | 1.0 |
| 24P. | PCB-1016 | BDL | 1.0 |
| 25P. | TOXAPHENE | BDL | 1.0 |

Surrogate Recovery - Introduced at the beginning of the extraction, the surrogate standard is a select compound that analytically mimics the response of certain analytes. A known concentration of this surrogate is added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| Dibutylchlorendate | 48 | (48-136)* |

BDL=BELOW DETECTION LIMIT
*Advisory surrogate; with the exception of dilutions recovery below 10% requires action step (re-extraction and re-analysis).

# QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AB-2
COMPUCHEM® SAMPLE NUMBER: 114408

## PESTICIDES

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114501 | OK |
| Sample Spike | 113983 | OK |
| Shift Standards | | |
| Pesticide/PCBs Standards | | OK |

COMPUCHEM LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE VOLATILE FRACTION ANALYZED |
|---|---|---|---|---|
| 1. | AB-3 | 114414 | 01/09/87 | 01/12/87 |

COMPOUND LIST - VOLATILE ORGANICS

SAMPLE IDENTIFIER: AB-3
COMPUCHEM® SAMPLE NUMBER: 114414

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1V. | CHLOROMETHANE | BDL | 10 |
| 2V. | BROMOMETHANE | BDL | 10 |
| 3V. | VINYL CHLORIDE | BDL | 10 |
| 4V. | CHLOROETHANE | BDL | 10 |
| 5V. | METHYLENE CHLORIDE | BDL | 10 |
| 6V. | ACROLEIN | BDL | 100 |
| 7V. | ACRYLONITRILE | BDL | 100 |
| 8V. | 1,1-DICHLOROETHYLENE | BDL | 10 |
| 9V. | 1,1-DICHLOROETHANE | BDL | 10 |
| 10V. | TRANS-1,2-DICHLOROETHYLENE | BDL | 10 |
| 11V. | CHLOROFORM | BDL | 10 |
| 12V. | 1,2-DICHLOROETHANE | BDL | 10 |
| 13V. | 1,1,1-TRICHLOROETHANE | BDL | 10 |
| 14V. | CARBON TETRACHLORIDE | BDL | 10 |
| 15V. | BROMODICHLOROMETHANE | BDL | 10 |
| 16V. | 1,2-DICHLOROPROPANE | BDL | 10 |
| 17V. | TRANS-1,3-DICHLOROPROPENE | BDL | 10 |
| 18V. | TRICHLOROETHYLENE | BDL | 10 |
| 19V. | DIBROMOCHLOROMETHANE | BDL | 10 |
| 20V. | 1,1,2-TRICHLOROETHANE | BDL | 10 |
| 21V. | BENZENE | BDL | 10 |
| 22V. | CIS-1,3-DICHLOROPROPENE | BDL | 10 |
| 23V. | 2-CHLOROETHYL VINYL ETHER | BDL | 10 |
| 24V. | BROMOFORM | BDL | 10 |
| 25V. | TETRACHLOROETHYLENE | BDL | 10 |
| 26V. | 1,1,2,2-TETRACHLOROETHANE | BDL | 10 |
| 27V. | TOLUENE | BDL | 10 |
| 28V. | CHLOROBENZENE | BDL | 10 |
| 29V. | ETHYLBENZENE | BDL | 10 |

Surrogate Recoveries - Introduced at the instrument, volatile surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of method efficiency for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| $D_4$-1,2-Dichloroethane | 79 | (77-120) |
| 4-Bromofluorobenzene | 100 | (85-121) |
| $D_8$-Toluene | 92 | (86-119) |

BDL= BELOW DETECTION LIMIT

## QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AB-3
COMPUCHEM® SAMPLE NUMBER: 114414

### VOLATILE

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | VB870112B19 | OK |
| Sample Spike | 114410 | OK |
| BFB* | BF870112A19 | OK |
| Shift Standard | VS870112A19 | OK |

*The tuning calibration compound, Bromofluorobenzene, is used for the volatile instruments.

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P.O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE ACID FRACTION ANALYZED | DATE BASE/NEUTRAL FRACTION ANALYZED |
|---|---|---|---|---|---|---|
| 1. | AB-3 | 114412 | 01/09/87 | 01/12/87<br>01/19/87* | 01/15/87<br>01/20/87* | 01/15/87 |

*See Quality Assurance Notice

COMPOUND LIST -- ACID EXTRACTABLES

SAMPLE IDENTIFIER: AB-3
COMPUCHEM® SAMPLE NUMBER: 114412

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1A. | PHENOL | BDL | 10 |
| 2A. | 2-CHLOROPHENOL | BDL | 10 |
| 3A. | 2-NITROPHENOL | BDL | 10 |
| 4A. | 2,4-DIMETHYLPHENOL | BDL | 10 |
| 5A. | 2,4-DICHLOROPHENOL | BDL | 10 |
| 6A. | P-CHLORO-M-CRESOL | BDL | 10 |
| 7A. | 2,4,6-TRICHLOROPHENOL | BDL | 10 |
| 8A. | 2,4-DINITROPHENOL | BDL | 50 |
| 9A. | 4-NITROPHENOL | BDL | 50 |
| 10A. | 4,6-DINITRO-O-CRESOL | BDL | 50 |
| 11A. | PENTACHLOROPHENOL | BDL | 50 |

Surrogate Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| 2-Fluorophenol | * | (23-121) |
| $D_5$-Phenol | * | (15-103) |
| 2,4,6-Tribromophenol | * | (10-130) |

BDL= BELOW DETECTION LIMIT
*See Quality Assurance Notice

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES

SAMPLE IDENTIFIER: AB-3
COMPUCHEM® SAMPLE NUMBER: 114412

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1B. | N-NITROSODIMETHYLAMINE | BDL | 10 |
| 2B. | BIS (2-CHLOROETHYL) ETHER | BDL | 10 |
| 3B. | 1,3-DICHLOROBENZENE | BDL | 10 |
| 4B. | 1,4-DICHLOROBENZENE | BDL | 10 |
| 5B. | 1,2-DICHLOROBENZENE | BDL | 10 |
| 6B. | BIS (2-CHLOROISOPROPYL) ETHER | BDL | 10 |
| 7B. | N-NITROSODI-N-PROPYLAMINE | BDL | 10 |
| 8B. | HEXACHLOROETHANE | BDL | 10 |
| 9B. | NITROBENZENE | BDL | 10 |
| 10B. | ISOPHORONE | BDL | 10 |
| 11B. | BIS(2-CHLOROETHOXY) METHANE | BDL | 10 |
| 12B. | 1,2,4-TRICHLOROBENZENE | BDL | 10 |
| 13B. | NAPHTHALENE | BDL | 10 |
| 14B. | HEXACHLOROBUTADIENE | BDL | 10 |
| 15B. | HEXACHLOROCYCLOPENTADIENE | BDL | 10 |
| 16B. | 2-CHLORONAPHTHALENE | BDL | 10 |
| 17B. | DIMETHYLPHTHALATE | BDL | 10 |
| 18B. | ACENAPHTHYLENE | BDL | 10 |
| 19B. | 2,6-DINITROTOLUENE | BDL | 10 |
| 20B. | ACENAPHTHENE | BDL | 10 |
| 21B. | 2,4-DINITROTOLUENE | BDL | 10 |
| 22B. | DIETHYLPHTHALATE | BDL | 10 |
| 23B. | 4-CHLOROPHENYL PHENYL ETHER | BDL | 10 |
| 24B. | FLUORENE | BDL | 10 |
| 25B. | DIPHENYLAMINE (N-NITROSO) | BDL | 10 |
| 26B. | 1,2-DIPHENYLHYDRAZINE (AZOBENZENE) | BDL | 10 |
| 27B. | 4-BROMOPHENYL PHENYL ETHER | BDL | 10 |
| 28B. | HEXACHLOROBENZENE | BDL | 10 |

(Continued)

BDL=BELOW DETECTION LIMIT

COMPOUND LIST -- BASE-NEUTRAL EXTRACTABLES (Page Two)

SAMPLE IDENTIFIER: AB-3
COMPUCHEM® SAMPLE NUMBER: 114412

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 29B. | PHENANTHRENE | BDL | 10 |
| 30B. | ANTHRACENE | BDL | 10 |
| 31B. | DI-N-BUTYLPHTHALATE | BDL | 10 |
| 32B. | FLUORANTHENE | BDL | 10 |
| 33B. | PYRENE | BDL | 10 |
| 34B. | BENZIDINE | BDL | 50 |
| 35B. | BUTYLBENZYLPHTHALATE | BDL | 10 |
| 36B. | 3,3'-DICHLOROBENZIDINE | BDL | 20 |
| 37B. | BENZO(A)ANTHRACENE | BDL | 10 |
| 38B. | BIS(2-ETHYLHEXYL)PHTHALATE | BDL | 10 |
| 39B. | CHRYSENE | BDL | 10 |
| 40B. | DI-N-OCTYLPHTHALATE | BDL | 10 |
| 41B. | BENZO(B)FLUORANTHENE | BDL | 10 |
| 42B. | BENZO(K)FLUORANTHENE | BDL | 10 |
| 43B. | BENZO(A)PYRENE | BDL | 10 |
| 44B. | INDENO(1,2,3-C,D)PYRENE | BDL | 10 |
| 45B. | DIBENZO(A,H)ANTHRACENE | BDL | 10 |
| 46B. | BENZO(G,H,I)PERYLENE | BDL | 10 |

Surrogates Recoveries - Introduced at the beginning of the extraction, surrogate standards are deuterated and/or select compounds that analytically mimic the response of certain analytes. Known concentrations of these surrogates are added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | %Recovery | Control Range% |
|---|---|---|
| $D_5$-Nitrobenzene | 78 | (41-120) |
| 2-Fluorobiphenyl | 78 | (44-119) |
| $D_{14}$-Terphenyl | 90 | (33-128) |
| $D_{10}$-Pyrene* | 90 | * |

BDL=BELOW DETECTION LIMIT
*Advisory Surrogate; therefore no control range.

# QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AB-3
COMPUCHEM® SAMPLE NUMBER: 114412

## ACID

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 115172 | OK |
| Sample Spike | 114376 | OK |
| DFTPP* | DI870120A16 | OK |
| Shift Standard | AS870120A16 | OK |

## BASE/NEUTRAL

| | | |
|---|---|---|
| Blank | 114596 | OK |
| Sample Spike | 114431 | OK |
| DFTPP* | DF870115A21 | OK |
| Shift Standard | BS870115A21 | OK |

*The tuning calibration compound, Decafluorotriphenylphosphine, is used for the acid and base/neutral instruments.

QUALITY ASSURANCE NOTICE
Sample#114412

Surrogate recoveries for the Acid fraction of this sample fell outside quality control limits in both the original and repeated analyses. These recoveries could not be attributed to errors in calculations, instrument performance, surrogate or internal standard solutions, or sample preparation. As a result, we have attributed these surrogate recoveries to the particular sample matrix rather than laboratory error.

Reviewer's Initials ESB

Date 01/21/87

COMPUCHEM
LABORATORIES

ANALYTICAL REPORT OF DATA
SUBMITTED TO:

Mr. Tom Edgerton
T. R. Edgerton, Inc.
P. O. Box 1307
102-F Woodwinds Industrial Ct.
Cary, NC 27511

CHRONICLE

| ITEM NO. | SAMPLE IDENTIFIER | COMPUCHEM® NUMBER | DATE SAMPLE RECEIVED | DATE SAMPLE EXTRACTED | DATE PESTICIDES/PCBs FRACTION ANALYZED |
|---|---|---|---|---|---|
| 1. | AB-3 | 114413 | 01/09/87 | 01/12/87 | 01/13/87 |

COMPOUND LIST -- PESTICIDES/PCBs

SAMPLE IDENTIFIER: AB-3
COMPUCHEM® SAMPLE NUMBER: 114413

| | | CONCENTRATION (UG/L) | DETECTION LIMIT (UG/L) |
|---|---|---|---|
| 1P. | ALDRIN | BDL | 0.10 |
| 2P. | ALPHA-BHC | BDL | 0.10 |
| 3P. | BETA-BHC | BDL | 0.10 |
| 4P. | GAMMA-BHC | BDL | 0.10 |
| 5P. | DELTA-BHC | BDL | 0.10 |
| 6P. | CHLORDANE (TECHNICAL) | BDL | 0.50 |
| 7P. | 4,4'-DDT | BDL | 0.10 |
| 8P. | 4,4'-DDE | BDL | 0.10 |
| 9P. | 4,4'-DDD | BDL | 0.10 |
| 10P. | DIELDRIN | BDL | 0.10 |
| 11P. | ALPHA-ENDOSULFAN | BDL | 0.10 |
| 12P. | BETA-ENDOSULFAN | BDL | 0.10 |
| 13P. | ENDOSULFAN SULFATE | BDL | 0.10 |
| 14P. | ENDRIN | BDL | 0.10 |
| 15P. | ENDRIN ALDEHYDE | BDL | 0.10 |
| 16P. | HEPTACHLOR | BDL | 0.10 |
| 17P. | HEPTACHLOR EPOXIDE | BDL | 0.10 |
| 18P. | PCB-1242 | BDL | 1.0 |
| 19P. | PCB-1254 | BDL | 1.0 |
| 20P. | PCB-1221 | BDL | 1.0 |
| 21P. | PCB-1232 | BDL | 1.0 |
| 22P. | PCB-1248 | BDL | 1.0 |
| 23P. | PCB-1260 | BDL | 1.0 |
| 24P. | PCB-1016 | BDL | 1.0 |
| 25P. | TOXAPHENE | BDL | 1.0 |

Surrogate Recovery - Introduced at the beginning of the extraction, the surrogate standard is a select compound that analytically mimics the response of certain analytes. A known concentration of this surrogate is added to the sample and a percent recovery is calculated. This recovery acts as a barometer of extraction efficiency and analytical response for the individual sample.

| | % Recovery | Control Range% |
|---|---|---|
| Dibutylchlorendate | 52 | (48-136)* |

BDL=BELOW DETECTION LIMIT
*Advisory surrogate; with the exception of dilutions recovery below 10% requires action step (re-extraction and re-analysis).

# QUALITY CONTROL SUMMARY

SAMPLE IDENTIFIER: AB-3
COMPUCHEM® SAMPLE NUMBER: 114413

## PESTICIDES

| | NUMBER | ACCEPTANCE CRITERIA |
|---|---|---|
| Blank | 114501 | OK |
| Sample Spike | 113983 | OK |
| Shift Standards | | |
| Pesticide/PCBs Standards | | OK |